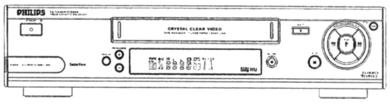
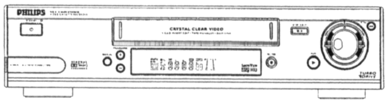
Video Cassette Recorder **DECK: Turbo Drive** **APOLLO 21**

Service
Service
Service

VR705/02/16/39/58
VR708A/02/07/16/39
VR766/02/07/16/39/58



VR766



VR705, VR708A

Service Manual

Evolution: AA

GB	For technical data reference is made to the Service Manual of APOLLO 21 **3103 785 20400.** The present Manual states only the differences.
D	Für technische Daten siehe Service Manual APOLLO 21 **3103 785 20390.** In dieser Dokumentation sind nur die Unterschiede enthalten.
NL	Voor de technische gegevens wordt verwezen naar de Service Documentatie van de APOLLO 21 **3103 785 20420.** Alleen de verschillen worden in deze documentatie gegeven.
F	Pour ce qui est des caractéristiques techniques veuillez vous référer à la Documentation Service du APOLLO 21 **3103 785 20410.** Cette documentation ne reprend que les différences.
I	Per i dati tecnici veda il Manuale di Servizio di APOLLO 21 **3103 785 20430.** La presente documentazione contene soltanto le differenze.
E	Para los datos técnicos véase el manual de servicio de APOLLO 21 **3103 785 20440.** La presente documentación contiene sólo las diferencias.

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden, für Reparaturen sind Original-Ersatzteile zu verwenden.

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen identiek aan de gespecificeerde worden toegepast

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

Survey of types:

VR705; VR708A:	Longplay, FM Audio
VR766:	Longplay, FM Audio, Tape Manager

Survey of versions:

/02	PAL B/G German Stereo
/07	PAL I, NICAM
/16	PAL B/G, NICAM & German Stereo
/39	PAL B/G & SECAM L, NICAM
/58	PAL B/G & SECAM BG/DK, NICAM & German Sereo

Survey of remote controls:

VR705/VR708A	english:	RT195/101	8622 661 95101
	french (/39):	RT195/104	8622 661 95104
VR766	english:	RT118/101	8622 661 18101
	french (/39):	RT118/104	8622 661 18104

Survey of tape decks:

VR705/VR708A/VR766:	WDQ-S4/2 4 Video+ 2 FM-Audio Heads

Le prescrizioni di sicurezza richiedono che l'apparecchio sia ricondotto alle condizioni originali e che siano usati ricambi originali.

Las instrucciones de seguridad exigen que despus de la reparación el aparato se encuentre en el estado original y que las piezas de repuesto, utilizadas para la reparación, sean idénticas a las originales.

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3103 785 21690

PHILIPS

PCBs & Tape Decks

	POWER SUPPLY	*MOTHER BOARD*	*DISPLAY CONTROL PCB's*				*TAPE DECK*
	ASM1	AMB	ADCP18	ADCP9.0 & AKP31	ACP18	ACP9.0	WDQT-S4/2
VR766 /02	●	●	●		●		●
VR766 /07	●	●	●		●		●
VR766 /16	●	●	●		●		●
VR766 /39	●	●	●		●		●
VR766 /58	●	●	●		●		●
VR705 /02	●	●		●		●	●
VR705 /02	●	●		●		●	●
VR705 /02	●	●		●		●	●
VR705 /02	●	●		●		●	●
VR708A /02	●	●		●		●	●
VR708A /07	●	●		●		●	●
VR708A /16	●	●		●		●	●
VR708A /39	●	●		●		●	●

GB

Technical Data

D

Technische Daten

F

Caractéristiques

Mains voltage	Netzspannung	Tension secteur	220 – 240 V
Mains frequency	Netzfrequenz	Fréquence	47 – 63 Hz
Power consumption:	Leistungsaufnahme:	Puissance absorbée:	16 W during operation
with Low Power Standby	Standby mit geringem Verbrauch	avec la fonction veille faible consommation	< 4 W
Ambient temperature	Raumtemperatur	Température ambiante	+10°C to +35°C
Relative humidity	Relative Luftfeuchtigkeit	Humidité relative	20 – 80 %
Weight	Gewicht	Poids	4.3 kg
Fast forward/rewind time	Vor-/Rückspulzeit	Temps (re-)bobinage	typ. 95s (E180 cass.)
Position of use	Betriebslage	Position d'emploi	horizontally, max. 15°
Video resolution	Video-Auflösung	Résolution vidéo	≥ 240 lines VHS
Audio	Audio	Audio SP:	80Hz – 10kHz (±8dB)
		Audio LP:	80Hz – 5kHz (±8dB)
		FM Audio:	20Hz – 20kHz (±3dB)

NL

Technische Gegevens

E

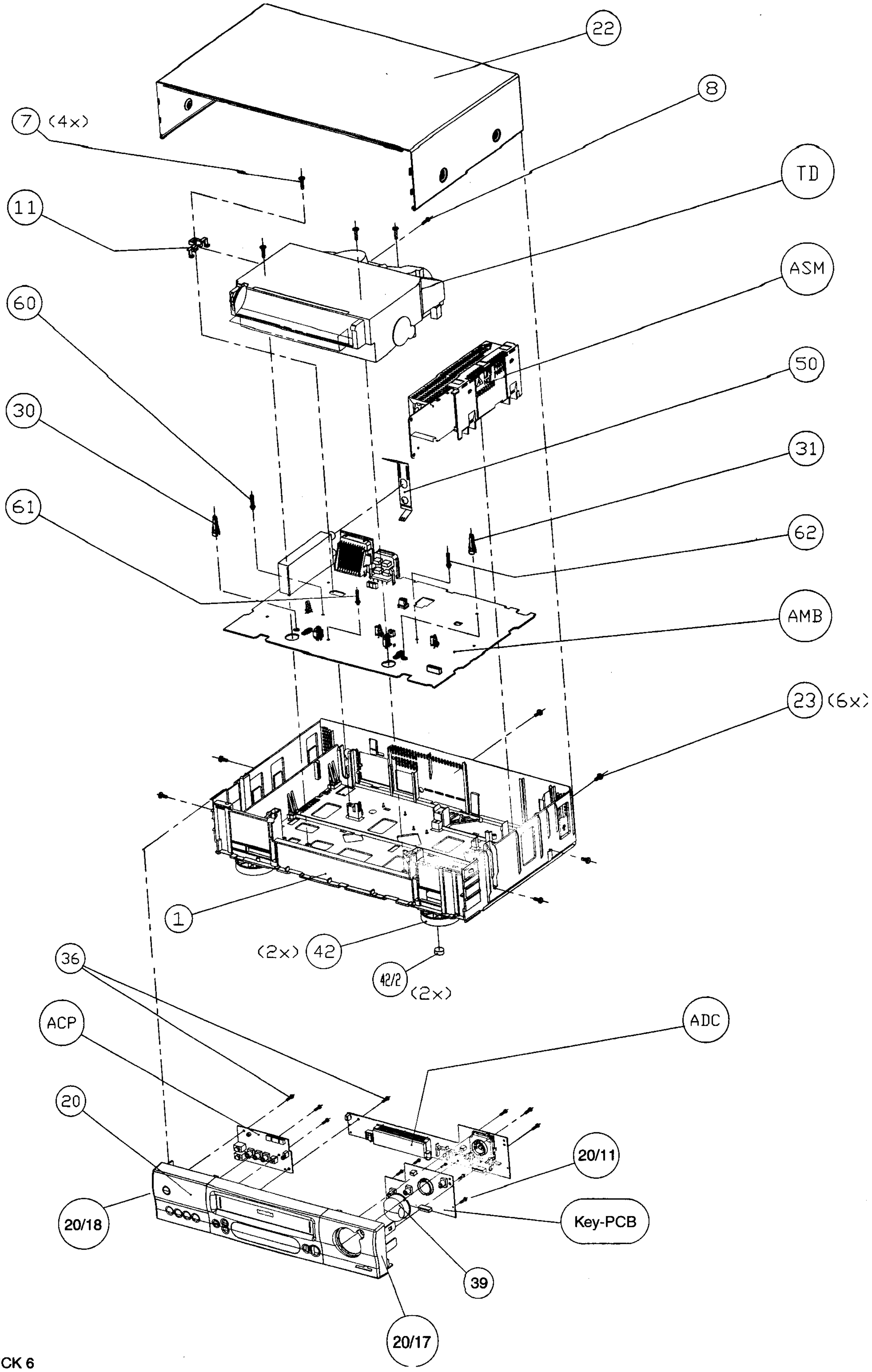
Datos Tecnicos

I

Dati Tecnici

Netspanning	Tensión de red	Tensione di alimentazione	220 – 240 V
Netfrequentie	Frecuencia de red	Frequenza di rete	47 – 63 Hz
Opgenomen vermogen:	Consumo de potencia:	Potenza assorbita:	16 W during operation
met Low Power Standby	con standby de bajo consumo	in attesa a basso consumo	< 4 W
Omgevingstemperatuur	Temperatura ambiente	Temperatura ambiente	+10°C to +35°C
Relatieve vochtigheid	Humedad relativa	Umiditá relativa	20 – 80 %
Gewicht	Peso	Peso	4.3 kg
Vooruit/terugspoeltijd	tiempo de (re-)bobinado	Tempo di (ri-)avvolgimento	typ. 95s (E180 cass.)
Gebruikspositie	Posición de uso	Posizione di funzionamento	horizontally, max. 15°
Opplossend vermogen	Resolución video	Risoluzione video	≥ 240 lines VHS
Audio	Audio	Audio SP:	80Hz – 10kHz (±8dB)
		Audio LP:	80Hz – 5kHz (±8dB)
		FM Audio:	20Hz – 20kHz (±3dB)

Exploded View of the Set & Mechanical Parts


22
8
7 (4x)
TD
11
ASM
60
50
30
31
61
62
AMB
23 (6x)
1
(2x) 42
42/2 (2x)
36
ACP
ADC
20
20/11
20/18
Key-PCB
39
20/17

Set Parts List

Position	Code Number	Description
1	3103 138 90890	FRAME ASSY
7	3103 100 42400	SCREW P3,5X16
8	4822 502 14431	SCREENING SCREW
11	4822 256 10504	TD-HOLDER
20	3103 138 92120	CONTROL PANEL ASSY VR705/02/16/58
20	3103 138 92140	CONTROL PANEL ASSY VR705/39
20	3103 138 90190	CONTROL PANEL ASSY VR708A/02/16
20	3103 138 90230	CONTROL PANEL ASSY VR708A/07
20	3103 138 90210	CONTROL PANEL ASSY VR708A/39
20	3103 138 92230	CONTROL PANEL ASSY VR766/02/16/58
20	3103 138 92240	CONTROL PANEL ASSY VR766/07
20	3103 138 92260	CONTROL PANEL ASSY VR766/39
20/6	3103 178 32190	LIFT FLAP ASSY VR705
20/6	3103 178 28310	LIFT FLAP ASSY VR708A
20/6	3103 178 32690	LIFT FLAP ASSY VR766
20/7	4822 492 70896	LEG SPRING LIFT FLAP
20/11	2511 076 50010	SCREW 3X8
20/12	3103 138 92390	KEY-PCB VR766/02/07/16/58
20/12	3103 138 92400	KEY-PCB VR766/39
20/17	3103 178 32700	SIDE CAP RIGHT VR766
20/18	3103 178 32710	SIDE CAP LEFT VR766
22	3103 141 23410	COVER LAQUERED VR705
22	3103 141 23610	COVER LAQUERED VR708A
22	3103 141 23720	COVER LAQUERED VR766
23	4822 502 14109	PLASTITE SCREW 3,5X10
30, 31	4822 256 10198	DISTANCE HOLDER DECK
36	2511 076 50013	SCREW BK3X10
40	3103 178 32240	SHUTTLE KNOB VR705
40	3103 178 28440	SHUTTLE KNOB VR708A
41	3103 178 32170	AV-COVER VR705/02/16/58
41	3103 178 32280	AV-COVER VR705/39
41	3103 178 28350	AV-COVER VR708A/02/07/16
41	3103 178 28450	AV-COVER VR708A/39
41	3103 178 29460	AV-COVER VR766/02/07/16/58
41	3103 178 32740	AV-COVER VR766/39
42	3103 178 25350	FOOT ASSY VR705 / VR708A
42	3103 178 29460	FOOT ASSY VR766
42/2	4822 462 41806	FOOT RUBBER INLAY
43	2511 076 50013	SCREW BK3X10
50	4822 492 11687	SPRING
60, 61, 62	4822 256 10359	DISTANCE HOLDER MOBO

Software version VR705 / VR708A:

pos.7451 3103 178 56270 EPROM ACOP8-U53

Display Control ADCP9, AKP31

MISCELLANEOUS

1234	4822 273 10375	EVQWML001
1234	4822 273 10374	EVQWMM001
1261	4822 242 82114	EFOEC8004/T4
1262	4822 242 70938	Crystal 32,768 kHz
1270	4822 276 13951	SWITACT 1P 20MA 15V
1271	4822 276 13951	SWITACT 1P 20MA 15V
1274	4822 276 13951	SWITACT 1P 20MA 15V
1275	4822 276 13951	SWITACT 1P 20MA 15V
1281	4822 276 13951	SWITACT 1P 20MA 15V
1282	4822 276 13951	SWITACT 1P 20MA 15V
1284	4822 276 13951	SWITACT 1P 20MA 15V
1295	4822 276 13951	SWITACT 1P 20MA 15V
1920	4822 267 51255	14 P
1921	4822 267 10957	CONN. 3P
1922	4822 267 10731	06FE-BT-VK-N
1923	4822 267 10957	CONN. 3P
1924	4822 267 10955	CONN 3P
1925	4822 267 10955	CONN 3P

CAPACITORS

2200	4822 124 80238	220	µF	5,5V
2201	4822 124 12052	220	µF	6,3V
2202	4822 126 10002	100	nF	25V
2203	4822 122 33177	10	nF	50V
2221	5322 122 34123	1	nF	50V
2225	4822 124 11946	22	µF	16V
2230	4822 122 33177	10	nF	50V
2231	4822 122 33797	47	nF	50V
2250	4822 126 13838	100	nF	
2262	4822 126 13486	15	pF	63V
2263	4822 126 13486	15	pF	63V

RESISTORS

3210	4822 116 52175	100	R	0,5W
3211	4822 116 52175	100	R	0,5W
3212	4822 051 20472	4,7	k	0,1W
3213	4822 051 20273	27	k	0,1W
3214	4822 051 20273	27	k	0,1W
3215	4822 051 20471	470	R	0,1W
3216	4822 051 20273	27	k	0,1W
3217	4822 051 20273	27	k	0,1W
3218	4822 051 20273	27	k	0,1W
3219	4822 051 20273	27	k	0,1W
3220	4822 116 83872	220	R	0,5W
3221	4822 116 83864	10	k	0,5W
3222	4822 051 10102	1	k	0,25W
3223	4822 051 20153	15	k	0,1W
3224	4822 117 11504	270	R	0.1W
3226	4822 117 11504	270	R	0.1W
3227	4822 117 10833	10	k	0,1W
3228	4822 117 10833	10	k	0,1W
3230	4822 051 20331	330	R	0,1W
3231	4822 051 20331	330	R	0,1W
3232	4822 117 11449	2,2	k	0,1W
3233	4822 117 11449	2,2	k	0,1W
3234	4822 117 11449	2,2	k	0,1W
3235	4822 117 10833	10	k	0,1W
3236	4822 117 10353	150	R	0,1W
3237	4822 051 20472	4,7	k	0,1W
3238	4822 051 20331	330	R	0,1W
3240	4822 117 10833	10	k	0,1W
3241	4822 117 10833	10	k	0,1W
3246	4822 051 20104	100	k	0,1W
3247	4822 051 20104	100	k	0,1W
3250	4822 117 10965	18	k	0,1W
3251	4822 116 52175	100	R	0,5W
3252	4822 116 52175	100	R	0,5W
3257	4822 050 24708	4,7	R	0,6W
3258	4822 050 24708	4,7	R	0,6W
3259	4822 050 24708	4,7	R	0,6W
3269	4822 117 10833	10	k	0,1W
3270	4822 051 20108	1	R	0,1W
3271	4822 051 20182	1,8	k	0,1W
3274	4822 117 10965	18	k	0,1W
3275	4822 051 20393	39	k	0,1W
3279	4822 117 10833	10	k	0,1W
3281	4822 051 20182	1,8	k	0,1W
3282	4822 051 20472	4,7	k	0,1W
3284	4822 117 10965	18	k	0,1W
3289	4822 117 10833	10	k	0,1W
3295	4822 051 20393	39	k	0,1W
3299	4822 117 10833	10	k	0,1W
3900	4822 051 20008	0	R	0,1W
3901	4822 051 20008	0	R	0,1W
3902	4822 051 20008	0	R	0,1W
3903	4822 051 20008	0	R	0,1W
3904	4822 051 20008	0	R	0,1W
3905	4822 051 20008	0	R	0,1W
3906	4822 051 20008	0	R	0,1W
3907	4822 051 20008	0	R	0,1W
3908	4822 051 20008	0	R	0,1W
3909	4822 051 20008	0	R	0,1W
3910	4822 051 20008	0	R	0,1W
3911	4822 051 20008	0	R	0,1W
3914	4822 051 20008	0	R	0,1W
3915	4822 051 20008	0	R	0,1W
3916	4822 051 20008	0	R	0,1W
3917	4822 051 20008	0	R	0,1W
3918	4822 051 20008	0	R	0,1W
3921	4822 051 20008	0	R	0,1W
3924	4822 051 20008	0	R	0,1W
3925	4822 051 20008	0	R	0,1W
3927	4822 051 20008	0	R	0,1W
3928	4822 051 20008	0	R	0,1W
3929	4822 051 20008	0	R	0,1W
3930	4822 051 20008	0	R	0,1W
3931	4822 051 20008	0	R	0,1W
3932	4822 051 20008	0	R	0,1W

COILS

5200	4822 157 50961	22 µH
5201	4822 157 11139	6,8UH 5%

DIODES

6200	4822 130 31983	BAT85
6212	4822 130 83081	LTL4231N-071A
6213	4822 130 83081	LTL4231N-071A
6214	4822 130 83081	LTL4231N-071A
6219	4822 130 83081	LTL4231N-071A
6220	4822 130 10227	SML-210MT
6221	4822 130 10227	SML-210MT
6222	4822 130 10227	SML-210MT
6223	4822 130 10227	SML-210MT
6224	4822 130 10227	SML-210MT
6225	4822 130 10227	SML-210MT
6226	4822 130 10227	SML-210MT
6227	4822 130 10227	SML-210MT
6228	4822 130 10227	SML-210MT
6229	4822 130 10227	SML-210MT
6230	4822 130 10227	SML-210MT
6231	4822 130 10227	SML-210MT
6232	4822 130 10227	SML-210MT
6233	4822 130 10227	SML-210MT
6234	4822 130 10227	SML-210MT
6235	4822 130 10227	SML-210MT
6236	4822 130 10227	SML-210MT
6237	4822 130 10227	SML-210MT
6250	4822 130 61219	BZX79-B10

▲... Safety component, use only this type

Display Control ADCP9; Connector PCB ACP9

TRANSISTORS & IC's

7200	4822 209 16895	TMP87CH70F-ADPU1-1U
7202	4822 135 00249	VACUUM FLUORESC. DISPLAY
7220	4822 218 11745	TSOP1736
7231	4822 130 63732	MMUN2212
7232	4822 130 63732	MMUN2212
7234	5322 130 60508	BC857B
7235	5322 130 60508	BC857B
7236	4822 130 10872	MMUN2112L
7240	5322 130 60508	BC857B
7241	5322 130 60508	BC857B

FLAT CABLES

8015	4822 320 12457	3P - 30MM (1925-1921)
8023	4822 320 12457	3P - 30MM (1925-1921)

Connector PCB ACP9

MISCELLANEOUS

1551	4822 276 13951	SWITACT 1P 20MA 15V
1929	4822 265 11207	CONNECTOR SOCKET 6P
1980	4822 267 10955	CONN 3P
1981	4822 323 10448	CABLTREEA 1POL BUPI-1957
1982	4822 267 10956	CONN. 7P
1985	4822 265 10732	3-FOLD(SHIELDED)
1986	4822 265 11429	HSJ1406-01-020
1987	4822 267 10958	CONN. 5P
1988	4822 265 11431	HSJ1406-01-040
1989	4822 267 31773	HSJ1452-01-110

CAPACITORS

2551	5322 122 32268	470	pF	50V
2552	4822 126 13836	470	A	50V
2553	4822 126 13196	100	nF	25V
2554	5322 122 32268	470	pF	50V
2555	4822 126 13836	470	A	50V
2556	4822 126 13196	100	nF	25V
2557	4822 124 22263	220	µF	25V
2558	4822 126 13196	100	nF	25V
2559	4822 126 13836	100	A	25V
2560	4822 126 13836	100	A	25V
2561	4822 124 21732	10	µF	25V
2565	5322 122 34123	1	nF	50V
2566	4822 126 13196	100	nF	25V
2567	4822 124 21732	10	µF	25V
2568	5322 122 32531	100	pF	50V
2569	4822 124 41643	100	µF	
2570	4822 126 13836	100	A	
2571	5322 122 32448	10	pF	
2572	4822 124 23052	100	µF	16V
2573	4822 124 23052	100	µF	16V
2580	4822 122 33177	10	nF	50V
2581	4822 122 33177	10	nF	50V
2582	5322 122 34123	1	nF	50V
2583	5322 122 32268	470	pF	50V

RESISTORS

3551	4822 116 10056	VD	R	
3552	4822 051 20105	1	M	0,1W
3553	4822 051 20684	680	k	0,1W
3554	4822 051 20474	470	k	0,1W
3555	4822 051 20472	4,7	k	0,1W
3556	4822 116 10056	VD	R	
3557	4822 051 20105	1	M	0,1W
3558	4822 051 20684	680	k	0,1W
3559	4822 051 20474	470	k	0,1W
3560	4822 051 20472	4,7	k	0,1W
3561	4822 051 20759	75	R	0,1W
3562	4822 116 83868	150	R	0,5W
3564	4822 117 10833	10	k	0,1W
3565	4822 117 10833	10	k	0,1W
3566	4822 051 20333	33	k	0,1W
3567	4822 117 10833	10	k	0,1W
3568	4822 051 20333	33	k	0,1W
3569	4822 117 10833	10	k	0,1W
3570	4822 051 20109	10	R	0,1W
3571	4822 051 20109	10	R	0,1W
3572	4822 051 20109	10	R	0,1W
3573	4822 051 20109	10	R	0,1W
3574	4822 051 20109	10	R	0,1W
3575	4822 051 20109	10	R	0,1W
3576	4822 117 10833	10	k	0,1W
3577	4822 117 10833	10	k	0,1W
3578	4822 051 20824	820	k	0,1W
3579	4822 117 11454	820	R	0,1W
3580	4822 051 20104	100	k	0,1W
3581	4822 117 10833	10	k	0,1W
3582	4822 051 20229	22	R	0,1W
3583	4822 051 20153	15	k	0,1W
3584	4822 051 20153	15	k	0,1W
3585	4822 051 20474	470	k	0,1W
3586	4822 117 11149	82	k	0,1W
3587	4822 051 20472	4,7	k	0,1W
3588	4822 117 11503	220	R	0.1W
3900	4822 051 20008	0	R	0,1W
3901	4822 051 20008	0	R	0,1W
3902	4822 051 20008	0	R	0,1W
3903	4822 051 20008	0	R	0,1W
3904	4822 051 20008	0	R	0,1W

RESISTORS

4507	4822 051 20008	0R00 JUMP. (0805)

COILS

5551	4822 157 11145	150UH 5%
5552	4822 157 11228	LAN02TB101J
5553	4822 157 11145	150UH 5%
5555	4822 157 11139	6,8UH 5%
5556	4822 157 11145	150UH 5%
5557	4822 157 11739	220UH 5% 2,4X3,4

DIODES

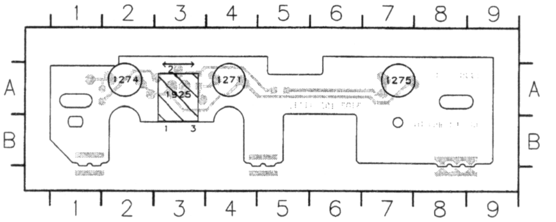
6551	4822 130 34197	BZX79-B12
6552	4822 130 34197	BZX79-B12
6553	4822 130 34278	BZX79-B6V8
6554	4822 130 34278	BZX79-B6V8
6555	4822 130 83757	BAS216
6556	4822 130 83757	BAS216
6557	4822 130 34278	BZX79-B6V8
6558	4822 130 34278	BZX79-B6V8
6559	4822 130 34197	BZX79-B12
6560	4822 130 34197	BZX79-B12
6570	4822 130 70059	LUH371-GK

TRANSISTORS & IC's

7520	4822 209 16193	TDA7053AT
7551	5322 130 42755	BC847C
7552	5322 130 42755	BC847C
7553	4822 130 41096	BC550C
7554	4822 130 41096	BC550C

Keyboard PCB AKP91

1271	A4
1274	A2
1275	A7
1925	A4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1271
1275
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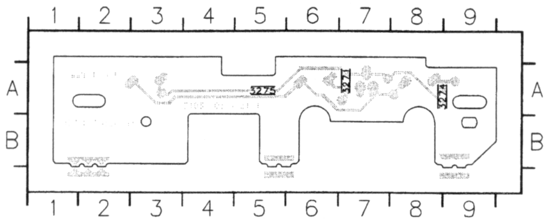
3271	A7
3274	A8
3275	A5


1
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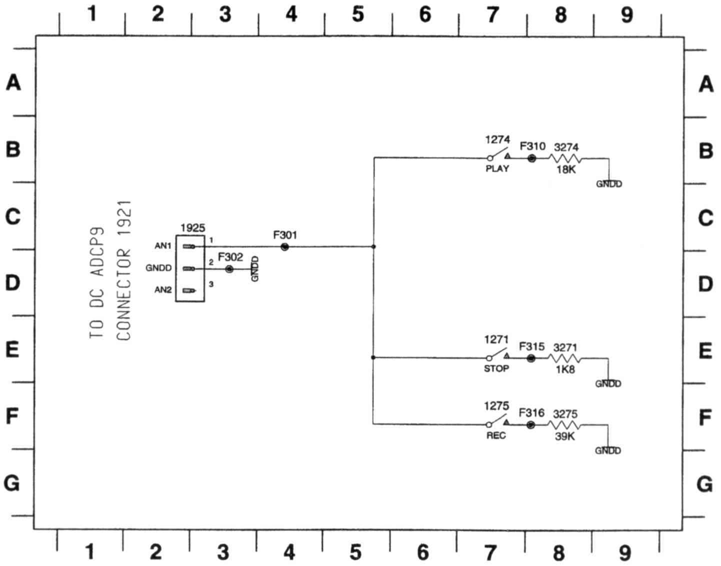
9
A
B
3275
3271
3274


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
TO DC ADCP9
CONNECTOR 1921
1925
AN1
GNDD
AN2
1
2
3
F302
GNDD
F301
1274
PLAY
F310
3274
18K
GNDD
1271
STOP
F315
3271
1K8
GNDD
1275
REC
F316
3275
39K
GNDD

1271	**E7**
1274	**B7**
1275	**F7**
1925	**C3**
3271	**E8**
3274	**B8**
3275	**F8**
F301	**C4**
F302	**D3**
F310	**B8**
F315	**E8**
F316	**F8**

Connector PCB ACP9

2551	E10	2565	E2	3551	F10	3560	E9	3571	D5	3580	E2	3900	A4	7520	C6
2552	E11	2566	F2	3552	E10	3561	E7	3572	E4	3581	B3	3901	C10	7551	E10
2553	E10	2568	E2	3553	E11	3564	E6	3573	D5	3582	C3	3902	B6	7552	E9
2554	D7	2570	C3	3554	E10	3565	C5	3574	D4	3583	B3	3903	B6		
2555	D8	2571	B3	3555	E10	3566	B5	3575	E3	3584	E2	3904	B4		
2556	E9	2580	E4	3556	E8	3567	B5	3576	F4	3585	C3	4507	C2		
2558	C4	2581	E4	3557	D8	3568	B4	3577	E3	3586	C3	5554	C2		
2559	B6	2582	E2	3558	D8	3569	B4	3578	F2	3587	C2	6555	F4		
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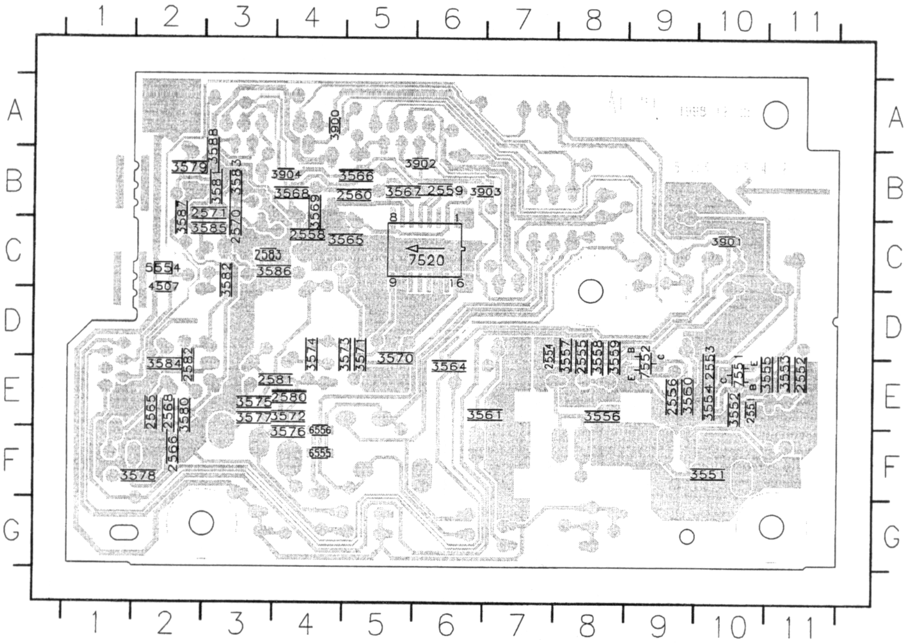
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3588
3583
3581
3904
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3902
3568
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2559
3903
3587
2571
3585
2570
3569
2558
3565
8
1
7520
9
16
3901
2583
3586
5554
4507
3582
3574
3573
3571
3570
3564
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3557
2555
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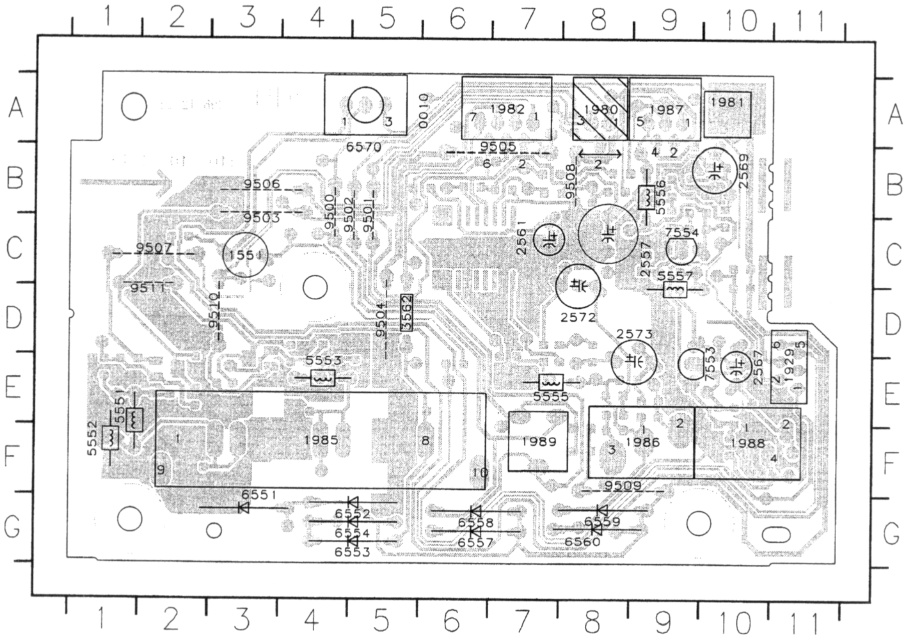
3559
7552
2553
3584
2582
2581
2580
3575
3572
3577
3576
6556
6555
2568
3580
2566
3578
3561
3556
2556
3560
3554
3552
2551
7551
3555
3553
2552
3551

0010	A6	1985	F4	2561	C7	5551	E1	6551	G3	6559	G8	9501	B5	9507	C2
1551	C3	1986	F9	2567	E10	5552	F1	6552	G5	6560	G8	9502	B4	9508	B8
1929	E11	1987	A9	2569	B10	5553	E4	6553	G5	6570	B5	9503	C3	9509	F8
1980	A8	1988	F10	2572	D8	5555	E7	6554	G5	7553	E10	9504	D5	9510	D3
1981	A10	1989	F7	2573	D9	5556	B9	6557	G6	7554	C9	9505	B7	9511	D2
1982	A7	2557	C9	3562	D5	5557	C9	6558	G6	9500	B4	9506	B3		


1
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3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
6570
0010
1982
1980
1987
1981
9505
2569
9506
9500
9502
9501
9508
5556
9503
2561
7554
9507
1551
2557
5557
9511
2572
9510
9504
3562
2573
7553
2567
1929
5553
5555
5551
5552
1985
1989
1986
1988
9509
6551
6552
6554
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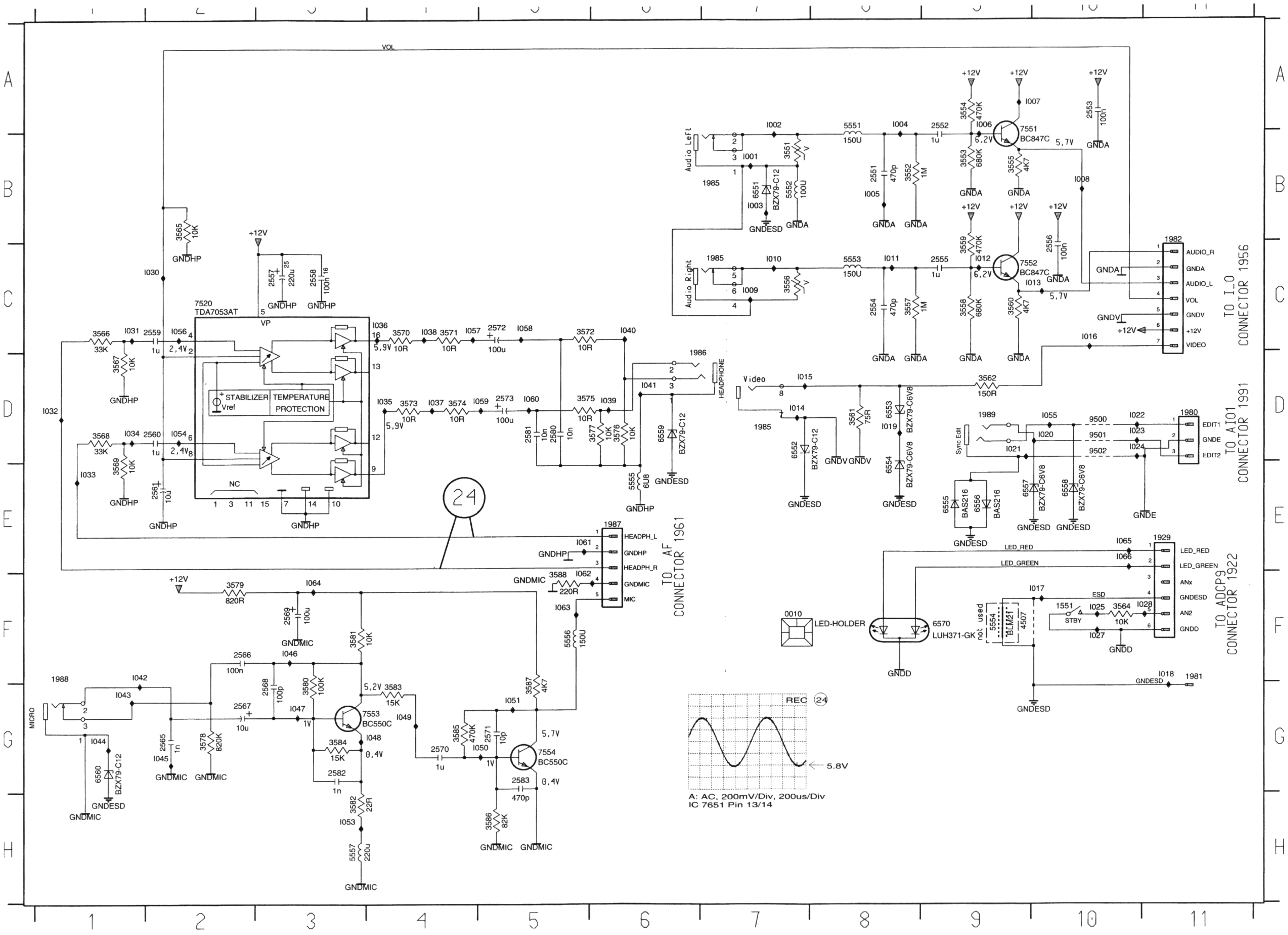
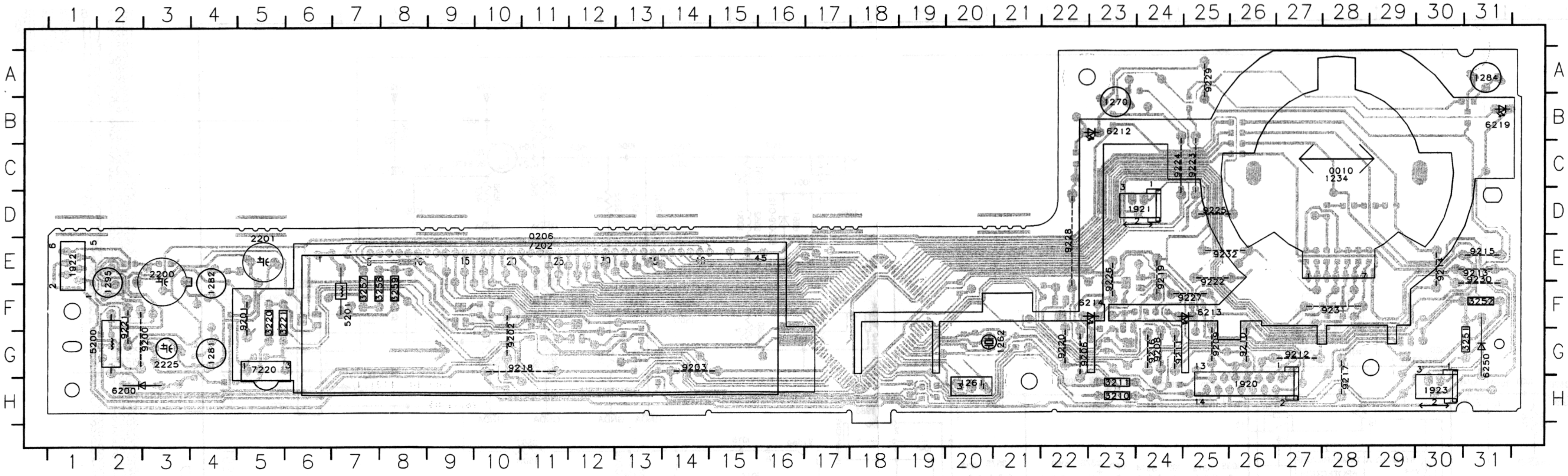
6558
6557
6559
6560

Connector PCB ACP9

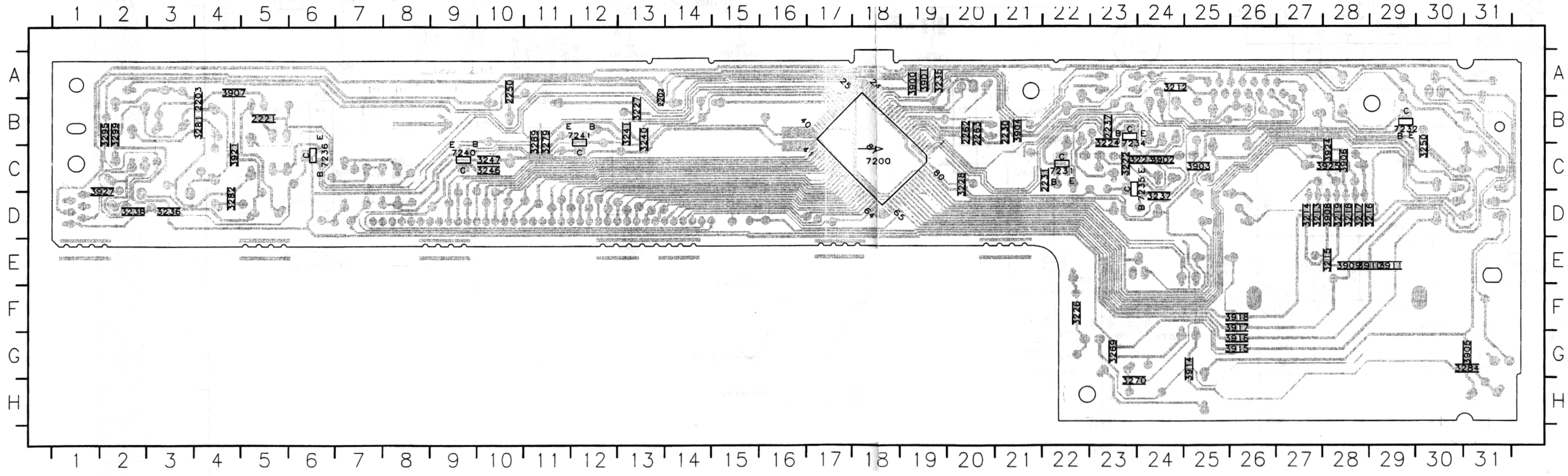

VOL
7520
TDA7053AT
STABILIZER
Vref
TEMPERATURE PROTECTION
NC
+12V
GNDHP
GNDMIC
GNDESD
GNDA
GNDV
GNDE
GNDD
Audio Left
Audio Right
Video
1985
1986
HEADPHONE
1988
MICRO
1989
Sync Edit
7551
BC847C
7552
BC847C
7553
BC550C
7554
BC550C
1982
AUDIO_R
GNDA
AUDIO_L
VOL
GNDV
+12V
VIDEO
TO I.O CONNECTOR 1956
1980
EDIT1
GNDE
EDIT2
TO AIO1 CONNECTOR 1991
1987
HEADPH_L
GNDHP
HEADPH_R
GNDMIC
MIC
TO AF CONNECTOR 1961
1929
LED_RED
LED_GREEN
ANx
GNDESD
AN2
GNDD
TO ADCP9 CONNECTOR 1922
0010
LED-HOLDER
6570
LUH371-GK
STBY
not used
1981
24
REC
5.8V
A: AC, 200mV/Div, 200us/Div
IC 7651 Pin 13/14
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H

1551	F10
1929	E11
1980	D11
1981	F11
1982	C11
1985	B7
1985	C7
1985	D7
1986	C6
1987	E6
1988	F1
1989	D9
2551	B8
2552	A9
2553	A10
2554	C8
2555	C9
2556	C10
2557	C3
2558	C3
2559	C2
2560	D2
2561	E2
2565	G2
2566	F2
2567	G2
2568	G3
2569	F3
2570	G4
2571	G5
2572	C5
2573	D5
2580	D5
2581	D5
2582	G3
2583	G5
3551	B7
3552	B8
3553	B9
3554	A9
3555	B9
3556	C7
3557	C8
3558	C9
3559	C9
3560	C9
3561	D8
3562	D9
3564	F10
3565	B2
3566	C1
3567	D1
3568	D1
3569	E1
3570	C4
3571	C4
3572	C5
3573	D4
3574	D4
3575	D5
3576	D6
3577	D6
3578	G2
3579	F2
3580	G3
3581	F3
3582	H3
3583	G4
3584	G3
3585	G4
3586	H5
3587	G5
3588	F5
4507	F9
5551	A8
5552	B7
5553	C8
5554	F9
5555	E6
5556	F5
5557	H3
6551	B7
6552	D7
6553	D8
6554	E8
6555	E9
6556	E9
6557	E9
6558	E10
6559	D6
6560	G1
6570	F9
7520	C2
7551	B9
7552	C9
7554	G5
9500	D10
9501	D10
9502	D10

Display Control ADCP9 (DC)

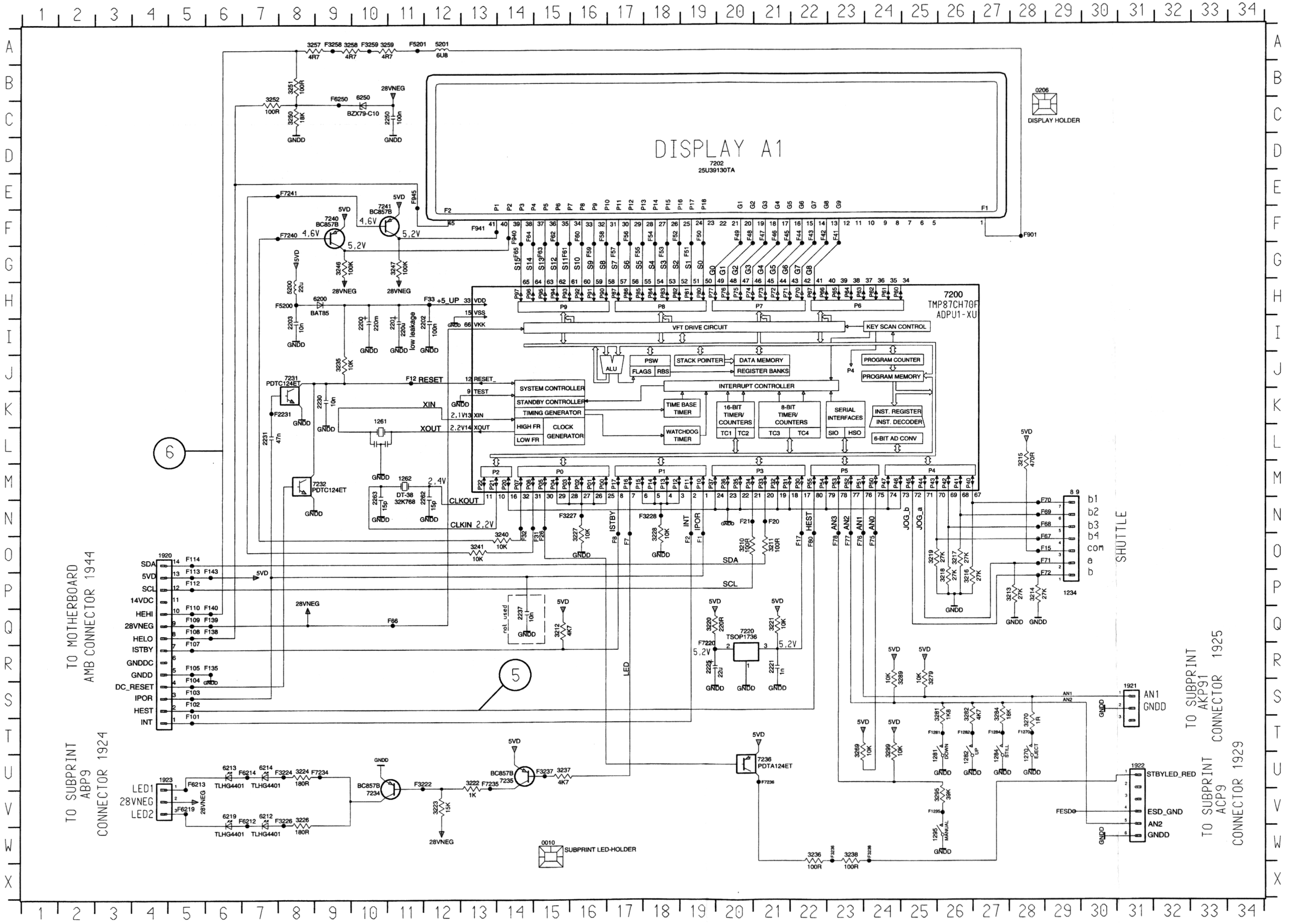

0206
7202
0010
1234
1920
1921
1922
1923
7220
9218
9203
9202
6212
6213
6214
6219
6250
6200
5200
5201
2200
2201
2225
1270
1284
1281
1282
1295
1261
1262
3210
3211
3220
3221
3251
3252
3257
3258
3259

0010	C28	9215	E31
0206	D11	9216	G24
1234	C28	9217	H28
1261	H20	9218	G10
1262	G21	9219	E24
1270	B23	9220	G22
1281	G4	9221	F2
1282	E4	9222	E25
1284	A31	9223	C25
1295	E2	9224	C24
1920	H26	9225	D25
1921	D24	9226	E23
1922	E1	9227	F25
1923	H30	9228	E22
2200	E3	9229	A25
2201	E5	9230	E31
2225	G3	9231	F28
3210	H23	9232	E25
3211	H23		
3220	F5		
3221	F5		
3251	G31		
3252	F31		
3257	F7		
3258	F7		
3259	F8		
5200	G1		
5201	F7		
6200	H2		
6212	B23		
6213	F25		
6214	F23		
6219	B31		
6250	G31		
7202	E11		
7220	G5		
9200	G3		
9201	F5		
9202	G10		
9203	G14		
9206	G22		
9208	G24		
9209	G25		
9210	G26		
9211	G24		
9212	G27		
9213	E31		
9214	F30		


7200
7231
7232
7234
7235
7236
7240
7241
3907
3927
3903
3918
3917
3916
3915
3914
3269
3270
3226
3228
3284
3250
3212
3237

2202	B13	3907	A4
2203	B4	3908	D28
2221	B5	3909	E28
2230	B21	3910	E29
2231	C22	3911	E29
2237	B23	3914	G25
2250	A10	3915	G26
2262	B20	3916	G26
2263	B20	3917	F26
3212	A24	3918	F26
3213	D27	3921	C4
3214	D27	3924	C28
3215	E28	3925	C28
3216	D28	3927	D2
3217	D28	7200	C18
3218	D28	7231	C22
3219	D28	7232	B29
3222	C23	7234	C23
3223	C24	7235	C24
3224	B23	7236	C6
3226	F22	7240	C9
3227	B13	7241	B12
3228	C20		
3235	A19		
3236	D3		
3237	D24		
3238	D2		
3240	B13		
3241	B13		
3246	C10		
3247	C10		
3250	C30		
3269	G23		
3270	H23		
3279	B11		
3281	B4		
3282	D4		
3284	G31		
3289	B11		
3295	B2		
3299	B2		
3900	A19		
3901	A19		
3902	C24		
3903	C25		
3904	B21		
3905	G31		
3906	C28		

Display Control ADCP9 (DC)


DISPLAY A1
7202
25U39130TA
0206
DISPLAY HOLDER
7200
TMP87CH70F
ADPU1-XU
VFT DRIVE CIRCUIT
KEY SCAN CONTROL
ALU
PSW
FLAGS
RBS
STACK POINTER
DATA MEMORY
REGISTER BANKS
PROGRAM COUNTER
PROGRAM MEMORY
INTERRUPT CONTROLLER
SYSTEM CONTROLLER
STANDBY CONTROLLER
TIMING GENERATOR
HIGH FR
LOW FR
CLOCK GENERATOR
TIME BASE TIMER
WATCHDOG TIMER
16-BIT TIMER/ COUNTERS
TC1
TC2
8-BIT TIMER/ COUNTERS
TC3
TC4
SERIAL INTERFACES
SIO
HSO
INST. REGISTER
INST. DECODER
6-BIT AD CONV
P9
P8
P7
P6
P0
P1
P2
P3
P4
P5
RESET
TEST
XIN
XOUT
CLKOUT
CLKIN 2,2V
+5_UP
VDD
VSS
VKK
7240
BC857B
7241
BC857B
4,6V
5,2V
5VD
28VNEG
GNDD
3257 F3258 3258 F3259 3259 F5201 5201
4R7
6U8
3251
100R
3252
100R
3250
18K
F6250 6250
BZX79-C10
2250
100n
3246
100K
3247
100K
5200
22u
6200
BAT85
F5200
2203
10n
2200
220m
2201
220u
low leakage
2202
100n
3235
10K
7231
PDTC124ET
F2231
2230
10n
2231
47n
1261
7232
PDTC124ET
1262
DT-38
32K768
2263
15p
2262
15p
3240
10K
3241
10K
6
5
1920
SDA
5VD
SCL
14VDC
HEHI
28VNEG
HELO
ISTBY
GNDDC
GNDD
DC_RESET
IPOR
HEST
INT
TO MOTHERBOARD
AMB CONNECTOR 1944
not used
2237
10n
3212
4K7
ISTBY
INT
IPOR
HEST
LED
SDA
SCL
3227
10K
3228
10K
3210
100R
3211
100R
3220
220R
3221
10K
7220
TSOP1736
F7220
5,2V
2225
22u
2221
1n
AN3
AN2
AN1
AN0
JOG_b
JOG_a
3219
27K
3218
27K
3217
27K
3216
27K
3213
27K
3214
27K
3215
470R
b1
b2
b3
b4
com
a
b
SHUTTLE
1234
3289
10K
3279
10K
1921
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TO SUBPRINT
AKP91
CONNECTOR 1925
3269
10K
3299
10K
3281
1K8
3282
4K7
3284
18K
3270
1R
1281
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1282
UP
1284
STILL
1270
EJECT
3295
39K
1295
MANUAL
1922
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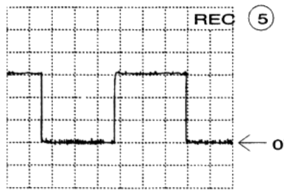
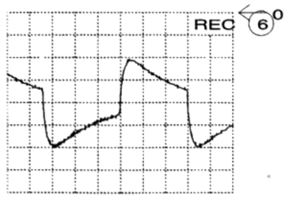
FESDG
ESD_GND
AN2
GNDD
TO SUBPRINT
ACP9
CONNECTOR 1929
7236
PDTA124ET
3236
100R
3238
100R
1923
LED1
28VNEG
LED2
TO SUBPRINT
ABP9
CONNECTOR 1924
6213
F6213
6214
F6214
TLHG4401
3224
F3224
F7234
180R
6219
F6219
6212
F6212
3226
F3226
7234
BC857B
F3222
3222
1K
F7235
7235
BC857B
F3237
3237
4K7
3223
15K
0010
SUBPRINT LED-HOLDER

0010	W15
0206	B28
1234	P29
1261	K10
1262	M11
1270	U28
1281	U25
1282	U26
1284	U27
1295	W25
1920	O5
1921	S31
1922	U31
1923	U5
2200	I10
2201	I11
2202	I12
2203	I8
2221	R21
2225	R19
2230	K9
2231	L7
2237	Q14
2250	C11
2262	M12
2263	M10
3210	O20
3211	O21
3212	Q15
3213	P28
3214	P28
3215	L28
3216	P26
3217	O26
3218	P26
3219	O25
3220	Q19
3221	Q21
3222	U13
3223	V12
3224	U8
3226	V8
3227	N16
3228	N18
3235	J9
3236	W22
3237	U15
3238	W23
3240	O14
3241	O13
3246	G9
3247	G11
3250	C8
3251	B8
3252	C7
3257	A8
3258	A9
3259	A10
3269	T23
3270	T28
3279	R25
3281	S26
3282	S26
3284	S27
3289	R24
3295	V26
3299	T24
5200	H8
5201	A12
6200	H9
6212	V7
6213	U6
6214	U7
6219	V6
6250	B10
7200	H26
7202	D20
7220	Q20
7231	J8
7232	M8
7234	V10
7235	U14
7236	U21
7240	F9
7241	E10



A: DC, 500mV/Div, 5us/Div
Connector 1944 Pin 13



A: DC, 5 V/Div, 5us/Div
Connector 1944 Pin 5

Video Cassette Recorder DECK: Turbo Drive APOLLO 21

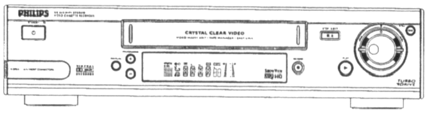
Service
Service
Service

V25978

VR710/02/07/16/39/58
VR765/02/07/16/39/58
VR810/02/07/16/39
VR910/02/07/16/39/58

PHILIPS
CRYSTAL CLEAR VIDEO

VR710, VR765



VR810, VR910

Service Manual

Evolution: AA

For technical data reference is made to the Service Manual of APOLLO 20 **4822 726 15538.** The present Manual states only the differences.

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

Survey of types:

VR710/VR765:	Longplay, FM Audio, Tape manager
VR810:	Longplay, FM Audio, Tape manager, Jog/Shuttle
VR910:	Longplay, FM Audio, Tape manager, Jog/Shuttle

Survey of versions:

/02	PAL B/G German Stereo
/07	PAL I, NICAM
/16	PAL B/G, NICAM & German Stereo
/39	PAL B/G & SECAM L, NICAM & German Stereo
/58	PAL B/G & SECAM BG/DK, NICAM & German Stereo

Survey of remote controls:

VR710/VR765:	english:	RT118/101	8622 661 18101
	french (/39):	RT118/104	8622 661 18104
VR810 :	english:	RT119/101	8622 661 19101
	french (/39):	RT119/104	8622 661 19104
VR910 :	english:	RT517/101	8622 665 17101
	french (/39):	RT517/104	8622 665 17104

Survey of tape decks:

VR710/VR765:	WDQT-S4/2	4 Video+ 2 FM-Audio Heads
VR810, VR910:	WDQT-S4/2S	4 Video+ 2 FM-Audio Heads Swing search

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Show view / Videoplus+ is registered by the Gemstar Development Group

PHILIPS

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PARTS LIST

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Features

Specification Items	VR705 /02	VR705 /16	VR705 /39	VR705 /58	VR708A /02	VR708A /07	VR708A /16	VR708A /39	VR766 /02	VR766 /07	VR766 /16	VR766 /39	VR766 /58
Backup Clock	7hrs	7hrs	7hrs	7hrs	7hrs	7hrs	7hrs	7hrs	7hrs	7hrs	7hrs	7hrs	7hrs
Tuning - presets	99	99	99	99	99	99	99	99	99	99	99	99	99
Reception													
PAL B/G	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓
PAL I			✓			✓		✓		✓		✓	
PAL D/K				✓									✓
SECAM L/L'			✓					✓				✓	
SECAM BG			✓	✓				✓				✓	✓
SECAM DK				✓									✓
German Stereo	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓
NICAM		✓	✓	✓		✓	✓	✓		✓	✓	✓	✓
Rec/Pb PAL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rec/Pb SECAM			✓					✓				✓	
Rec/Pb MESECAM			✓	✓				✓				✓	✓
NTSC Playback	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Modulator	Pal G	Pal G		Pal G/K	Pal G	Pal I	Pal G		Pal G	Pal I	Pal G		Pal G/K
Auto Tuning	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓
Auto Install						✓				✓			
Plug & Play	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sat mouse	no	no	no	no	no	no	no	no	no	no	no	no	no
Guide Channel Mapping	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Time/Date Download	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Synchro edit													
Auto Tape Length Recognition	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wind/Rew. Time (E180)	90s	90s	90s	90s	90s	90s	90s	90s	90s	90s	90s	90s	90s
VISS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Studio Picture Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Noise canceller	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Smart Picture	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
VPS/PDC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ShowView	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓
VideoPLUS +						✓				✓			
Rec.Prep. Mode Scart 1/2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Audio Dubbing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cinema Link (pin 10)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dolby virtual surround													
Smart sound													
Tape Manager									✓	✓	✓	✓	✓

PCBs & Tape Decks

	POWER SUPPLY	MOTHER BOARD	DISPLAY CONTROL				TAPE DECK	
	ASM1	AMB	ADCP18	ADCP18.1	ACP18	ACP18.1	WDQT-S4/2	WDQT-S4/2S
VR710; VR765 /02	●	●	●		●		●	
VR710; VR765 /07	●	●	●		●		●	
VR710; VR765 /16	●	●	●		●		●	
VR710; VR765 /39	●	●	●		●		●	
VR710; VR765 /58	●	●	●		●		●	
VR810/02	●	●		●	●			●
VR810/07	●	●		●	●			●
VR810/16	●	●		●	●			●
VR810/39	●	●		●	●			●
VR910/02	●	●		●		●		●
VR910/07	●	●		●		●		●
VR910/16	●	●		●		●		●
VR910/39	●	●		●		●		●
VR910/58	●	●		●		●		●

GB **Technical Data**	D **Technische Daten**	F **Caractéristiques**	
Mains voltage	Netzspannung	Tension secteur	220 – 240 V
Mains frequency	Netzfrequenz	Fréquence	47 – 63 Hz
Power consumption:	Leistungsaufnahme:	Puissance absorbée:	16 W during operation
with Low Power Standby	Standby mit geringem Verbrauch	avec la fonction veille faible consommation	< 4 W
Ambient temperature	Raumtemperatur	Température ambiante	+10°C to +35°C
Relative humidity	Relative Luftfeuchtigkeit	Humidité relative	20 – 80 %
Weight	Gewicht	Poids	4.3 kg
Fast forward/rewind time	Vor-/Rückspulzeit	Temps (re-)bobinage	typ. 95s (E180 cass.)
Position of use	Betriebslage	Position d'emploi	horizontally, max. 15°
Video resolution	Video-Auflösung	Résolution vidéo	≥ 240 lines VHS
Audio	Audio	Audio SP:	80Hz – 10kHz (±8dB)
		Audio LP:	80Hz – 5kHz (±8dB)
		FM Audio:	20Hz – 20kHz (±3dB)

NL **Technische Gegevens**	E **Datos Tecnicos**	I **Dati Tecnici**	
Netspanning	Tensión de red	Tensione di alimentazione	220 – 240 V
Netfrequentie	Frecuencia de red	Frequenza di rete	47 – 63 Hz
Opgenomen vermogen:	Consumo de potencia:	Potenza assorbita:	16 W during operation
met Low Power Standby	con standby de bajo consumo	in attesa a basso consumo	< 4 W
Omgevingstemperatuur	Temperatura ambiente	Temperatura ambiente	+10°C to +35°C
Relatieve vochtigheid	Humedad relativa	Umiditá relativa	20 – 80 %
Gewicht	Peso	Peso	4.3 kg
Vooruit/terugspoeltijd	tiempo de (re-)bobinado	Tempo di (ri-)avvolgimento	typ. 95s (E180 cass.)
Gebruikspositie	Posición de uso	Posizione di funzionamento	horizontally, max. 15°
Opplossend vermogen	Resolución video	Risoluzione video	≥ 240 lines VHS
Audio	Audio	Audio SP:	80Hz – 10kHz (±8dB)
		Audio LP:	80Hz – 5kHz (±8dB)
		FM Audio:	20Hz – 20kHz (±3dB)

Safety instructions

- Safety regulations demand that the set be restored to its original condition and that components identical with the original types be used.

  Safety components are marked by the symbol ⚠

- All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair may reduce life drastically. When repairing, make sure that you are conneted with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools on the same potential.
- A set to be repaired should always be connected to the mains via a suitable isolating transformer.
- Never replace any modules or any other parts while the set is switched on.
- Use plastic instead of metal alignment tools. This in order to prelude short-circuit or to prevent a specific circuit from being rendered unstable.

Remarks

- The direct voltages and oscillograms ought to be measured relative to the set mass.
  EXCEPTION
  At the power supply, the DC voltages and the oscillograms at the primary side are measured to LIVE GND.
- The direct voltages and oscillograms mentioned in the diagrams ought to be measured with a colour bar signal and the picture carrier at 503.25 MHz (C25).
- The oscillograms and direct voltages have been measured in RECORD or PLAY mode.
- The semiconductors, which are mentioned in the circuit diagram and in the parts lists, are fully exchangeable per position with the semiconductors in the set, irrespective of the type designation of these semiconductors.

Sicherheitshinweise

- Die Sicherheitsvorschriften erfordern es, daß sich das Gerät nach der Reparatur in seinem originalen Zustand befindet und daß die zur Reparatur benutzten Ersatzteile mit den Originalersatzteilen identisch sind.

  Sicherheits-Bauteile sind mit der Markierung ⚠ versehen

- Alle IC's und Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD). Unvorschriftmässige Behandlung von Halbleitern im Reparaturfall kann zur Zerstörung dieser Bauteile oder zu einer drastischen Reduzierung der Lebensdauer führen. Sorgen Sie dafür, daß Sie sich im Reparaturfall über ein Armband mit Widerstand auf dem gleichen Potential, wie die Masse des Gerätes befinden. Alle Bauteile, Werkzeuge und Hilfsmittel sind auf das gleiche Potential zu legen.
- Ein zu reparierendes Gerät ist immer über einen Trenntransformator an die Netzspannung anzuschließen.
- Bei eingeschaltetem Gerät dürfen keine Module oder sonstige Einzelteile ausgetauscht werden.
- Zum Abgleich sind ausschließlich Kunststoffwerkzeuge zu benutzen (keine Metallwerkzeuge verwenden). Dadurch wird vermieden, daß ein Kurzschluß entstehen kann oder eine Schaltung instabil wird.

Anmerkungen

- Die Gleichspannung und Oszillogramme sind gegen Gerätemasse zu messen.
  AUSNAHME
  Beim Netzteil sind die Gleichspannungen und Oszillogramme auf der Primärseite gegen Live GND gemessen.
- Die Gleichspannungen und Oszillogramme angeführt in den Schaltbildern sollen unter folgenden Bedingungen gemessen werden: Farbbalkensignal, Bildträger auf 503.25 MHz (C25)
- Die Oszillogramme und Gleichspannungen sind in RECORD oder PLAY gemessen. Die in den Stücklisten aufgeführten Bauteile sind positionsweise voll auswechselbar gegen die Bauteile in dem Gerät, ungeachtet der etwaigen Typenbezeichungen.

Avertissements

- Les normes de sécurité exigent qu'aprés réparation l'appareil soit remis dans son état d'origine et que soient utilisées les piéces de rechange identiques à celles spécifiées.

  Les composants de sécurité sont marqués ⚠

- Tout les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharger statiques (ESD). Leur longévité pourrait étre considérablement écourté par le fait qu'aucune précaution n'est prise à leur manipulation. Lors de réparations s'assurer de bien étre relié au méme potential que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité. Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.
- Toujours alimenter un appareil à réparer à travers un transfo d'isolement.
- Ne jamais remplacer les modules ni d'autres composants quand l'appareil est sous tension.
- Pour l'ajustage, utiliser des outils en plastique au lieu d'instruments métalliques. Ceci afin d'éviter les court-circuits et exclure l'instabilité dans certains circuits.

Observations

- La mésure des tensions continues et des oscillogrammes doit se faire par rapport à la terre de l'appareil.
  EXCEPTION
  Sur l'unité d'alimentation la tension continue et l'oscillogramme sont mesurés sur le côte primaire en Live GND.
- La mésure des tensions continues et des oscillogrammes figurant sur le schéma doit se faire dans un signal de barre couleur porteuse image sur 503.25 MHz (C25).
- Les oscillogrammes et tension sont mésurées en mode RECORD ou PLAY.
- Les semi-conducteurs indiqués dans le schéma de principe et à la liste des compostants, sont interchangeables par repère sur ce chassis avec les semi-conducteurs de l'appareil quelle que soit la désignation de type donnée sur ces semi-conducteurs.

Veiligheidsinstructies

- Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, indentiek aan de oorspronkelijke, worden toegepast.

  De veiligheidsonderdelen zijn aangeduid met het symbool ⚠

- Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor, dat U tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat. Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.
- Sluit een apparaat dat gerepareerd wordt altijd via een scheidingstransformator aan op de netspanning.
- Verwissel nooit modules of andere onderdelen terwijl het apparaat is ingeschakeld.
- Gebruik voor het afregelen plastic i.p.v metalen gereedschap. Dit om mogelijke kortsluiting te voorkomen of een bepaalde schakeling instabiel te maken.

Opmerkingen

- De gelijksspanningen en oscillogrammen dienen gemeten te worden ten opzichte van de apparaat aarde.
- De gelijksspanningen en oscillogrammen vermeld in de schema's dienen gemeten te worden met een kleurbalkensignaal beelddraaggolf op 503.25 MHz (C25).
- De oscillogrammen en gelijksspanningen zijn in RECORD of PLAY mode gemeten.
- De halfgeleiders, die in het pricipeschema en in de stuklijsten, zijn vermeld, zijn per positie volledig uitwisselbaar met de halfgeleiders in het apparaat, ongeacht de typeaanduiding op deze halfgeleiders.

Avvertimenti

- Le prescrizioni di sicurezza richiedono che l'apparecchio sia ricondotto alle condizioni originali e che siano usati ricambi originali.

  Componenti di sicurezza sono marcati con ⚠

- Tutti gli IC e semiconduttori sono sensibili a scariche elettrostatiche (ESD). Noncuranze durante la riparazione di semiconduttori possono danneggiarli o condurre ad una riduzione drastica della durata. Durante la riparazione assicurarsi di essere collegati allo stesso potenziale attraverso un bracciale di protezione contro scariche elettrostatiche. Inoltre tenere anche tutti i componenti e gli attrezzi a questo potenziale.
- Apparecchi da riparare bisogna collegarli sempre via un trasformatore isolante (separatore) alla tensione normale.
- Non scambiare moduli o altri componenti quando l'apparecchio è in funzione.
- Per l'accordo usare soltanto attrezzi di plastica (non usare attrezzi metallici). Cosí si evitano cortocircuiti e collegamenti instabili.

Osservazioni

- Misurare le tensioni continue e gli oscillogrammi riferiendosi alla massa dell'apparecchio.
  ECCEZIONE
  Le tensioni continue e gli oscillogrammi dall'alimentatore sono misurati sulla parte primaria contro GND-Live.
- Le tensioni continue e gli oscillogrammi indicati negli schemi di collegamento devono essere misurati secondo le condizioni seguenti: segnale barre colore, portante dell'immagine su: 503.25 MHz (C25).
- Gli oscillogrammi e le tensioni continue sono misurati in RECORD o PLAYBACK.
- I componenti indicati nelle liste sono intercambiabili con quelli nell'apparecchio nonostante l'eventuale denominazione di modelli.

Avisos

- Las instrucciones de seguridad exigen que después de la reparación el aparato se encuentre en el estado original y que las piezas de repuesto, utilizadas para la reparación, sean idénticas a las originales.

  Los componentes de seguridad estan marcados con ⚠

- Todos los IC y semiconductores son sensibles a descargas electrostáticas (ESD). Un tratamiento no conforme a las instrucciones de semiconductores en caso de reparación, podría llevar a la destrucción de estos componentes, o a una reducción drástica de la duración. Tenga cuidado de que, en caso de reparación, estar al mismo potencial que la masa del aparato, por una pulsera con resistencia. Ponga todos los componentes, herramientas y recursos al mismo potencial.
- Para reparar un aparato hay que conectarlo siempre a la alimentación a traves de un transformador de aislamiento.
- Cuando un aparato está en marcha no pueden ser cambiados módulos u otras piezas de repuesto.
- Para los ajustes hay que utilizar exclusivamente herramientas de plástico (nunca herramientas metálicas). Así se evitaran cortocircuitos y circuitos inestables.

Notas

- Hay que medir las tensiones continuas y los oscilogramas contra la masa del aparato.
  UITZONDERING:
  Bij het netgedeelte zijn de gelijkspanningen en oscillogrammen aan de primaire kant tegen Live GND gemeten.
- Las tensiones continuas y los oscilogramas mencionados en los esquemas tienen que ser medidos de manera siguiente: señal barra de color portadora de imagen en 503.25MHz (C25)
- Los oscilogramas y las tensiones continuas son medidas en „RECORD“ y „PLAYBACK“
- Los componentes mencionados en las listas se los puede cambiar por los componentes en el aparato, a pesar de eventuales designaciones de tipos.

ADJUSTMENT INSTRUCTIONS

1.Tape Manager

Set the tape manager number

This setting has to be done after replacement of the EEPROM.

- call up the service test program, select step 43
- the display shows T-:--:43
- using the remote control, type in the last tree digits of the serial number, located on the type plate of the set
- press the ok button
- exit the service test program.

2. Video signal processing (VS-SEC)

Service tasks after replacement of ICs 7004, 7072:

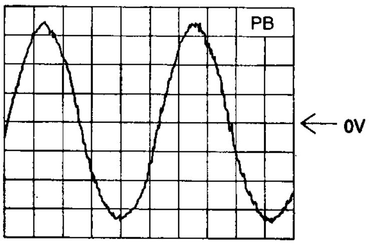
Before commencing adjustment:
Call the service test program and enter Step 10 (Dummy mode). Remove the drive from the motherboard.

2.1 3.3 MHz adjustment [3089] (for SECAM)

Purpose: To adjust the mixing oscillator

Consequences of incorrect settings:
Cross patterns in coloured areas, coloured noise.

TP	ADJ.	MODE	INPUT
IC7072 pin 17	R3089	Dummy mode step 10 playback	1.2 MHz sinus 100mVpp, R3065 +5V on IC 7072 pin16; R3064
TAPE		MEAS. EQ.	SPEC.
		Oscilloscope Video pattern generator Sinus generator	adjust to optimum sinus



A: AC, 50mV/Div, 50ns/Div
IC 7072 Pin 17

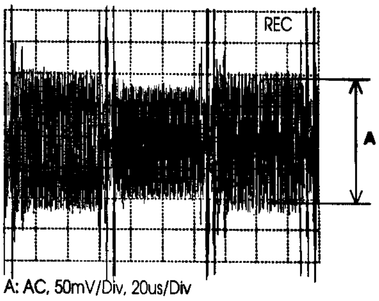
2.2 SECAM chrominance record current adjustment [3088]:

Purpose: To set the optimum record SECAM chroma level.

Symptom, if incorrectly set:
If the record level is too high, beats may appear on the picture. If the level is too low, the colour may be degraded.

TP	ADJ.	MODE	INPUT
CSRV pos.9068	R3088	Dummy mode Record Preset E2	(VIDEO IN E2) Red Picture SECAM 75% Saturation
TAPE		MEAS. EQ.	SPEC.
		Oscilloscope Video Pattern Generator	A=240 ± 15 mV$_{pp}$,

Notes: With varying frame amplitudes, the setting is made for the greatest amplitude.

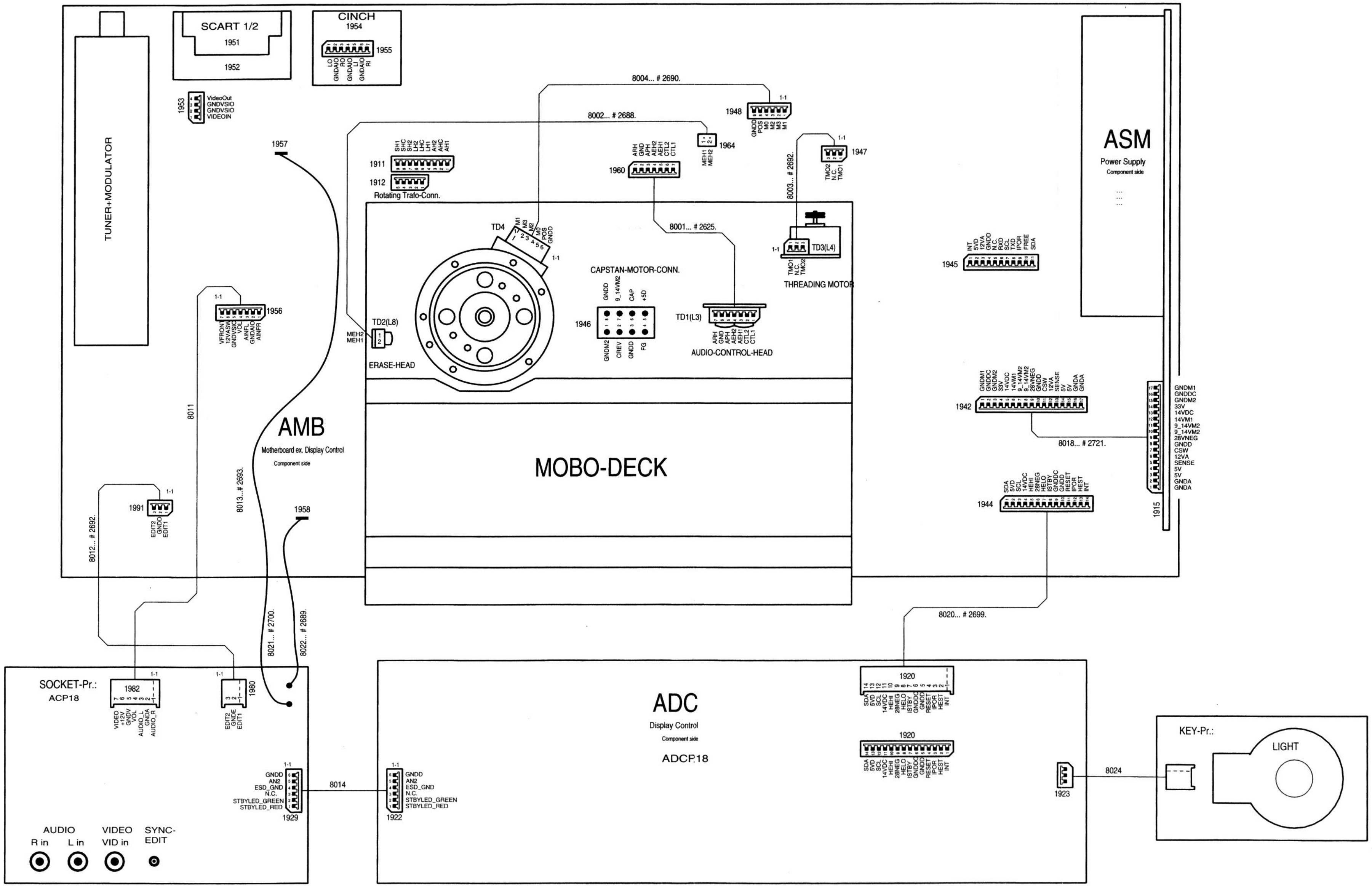


A: AC, 50mV/Div, 20us/Div

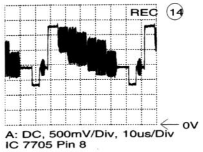
List of Signal Abbreviations

2FSC	2x Colour subcarrier
10SC12	Scart 1/2 Pin 10
8SC1	Scart 1 pin 8 input
8SC1H	Scart 1 pin 8 high level
8SC1M	Scart 1 pin 8 medium level
8SC2	Scart 2 pin 8 input
9_14VM2	Capstan motor supply, switched
A0-19	Adress lines
AEH1/2	Audio erase head
AF1	Audio from frontend, left
AF2	Audio from frontend, right
AFC	Automatic frequency control
AFE	Audio from frontend
AGC	Automatic gain control
AH1/2/C	Audio heads
AIN1L	Audio input scart 1, left
AIN1R	Audio input scart 1, right
AIN2L	Audio input scart 2, left
AIN2R	Audio input scart 2, right
AINBL	Audio left from cinch connector
AINBR	Audio right from cinch connector
AINFL	Audio left from Front connector
AINFR	Audio right from front connector
AMCO	Audio mono to the modulator
AMLP	Audio mono playback
AMLR	Audio mono record
AN1/2	Analog voltage from keyboard matrix
ANIL	NICAM Audio, left
ANIR	NICAM Audio, right
AOUT1L	Audio output from scart 1, left
AOUT1R	Audio output from scart 1, right
AOUT2L	Audio output from scart 2, left
AOUT2R	Audio output from scart 2, right
APH	Audio playback head
ARH	Audio record head
CAGC	Chroma Automatic gain control
CAP	Capstan regulation voltage
CKDET	Colour killer detection
CNR	Chroma Noise Reduction
CPRV	Chrominance PAL record
CREV	Capstan reverse
CROT	Colour rotation
CS0	Chip Select 0
CS1	Chip Select 1
CSCP	Colour phase switching for LP feature mode
CSI	Colour system information
CSP	Chrominance secam playback
CSPO	Chroma to Noise Reduction
CSRV	Chrominance secam record
CSW	9V/17V switching for capstan motor
CSYNC/1/2	Composite sync pulse
CTL1/2	Control track signal
D0-7	Data lines
DC_RESET	Reset Display Control
DRUM	Head wheel control
EDIT1/2	Synchro-Edit control signal
ENVC	Envelope comparator signal
FFP	Feature frame pulse
FGD	Capstan tacho pulse digital
FM1	L+R
FM2	2R
FMAP	FM audio playback
FMAR	FM audio record
FMPV	FM video playback
FMRV	FM video record
FOME	Follow Me (video signals equal)
FSC	Colour subcarrier
FTA	Threading tacho
FTAD	Threading tacho digital
HEHI	Heater for displaytube high
HELO	Heater for displaytube low
HEST	Heater voltage control signal
HP1	Head pulse video
HP2	Head pulse audio
HSC	Head Select Control (SP/LP)
IMEO	Main erase oscillator on/off
INIT	Deck switch
INT	Interrupt
IPOR	Inverse power on reset
IRAF	Inverse record FM-audio
IRAL	Inverse Record Audio Linear
IREV	Inverse Record Video
ISTBY	Inverse stand by
ISWS	Crosstalk Reduction
IWIND	Control pulse amplification low
LH1/2/C	Long play heads
MEH1/2	Main erase head
MON	Loop through pin 16 scart 2/1
MTA	Audio mute
NC	Not connected
ODAT	Shift register bus data
OFP	OSD Frame pulse
PBV	Playback Video
PG_FG	Head wheel position/-speed
PIN10_IN	Pin 10 scart 1/2 output
PIN10_OUT	Pin 10 scart 1/2 input
POR	Power on reset
PSS	PAL/SECAM Switch
RD	Output Enable RAM/ROM
RECP	Record protection
RxD	Receive Data
SB1	Secam band 1
SCL	IIC bus clock
SDA	IIC bus data
SCL2	YCA IIC bus clock
SDA2	YCA IIC bus data
SCL3	High Speed IIC bus clock
SDA3	High Speed IIC bus data
SFS	Sound filter switch
SH1/2/C	Standard play heads
SRCLK	Shift Register Clock
SSIF	Second sound intermediate frequency
STROBE	Strobe pulse for shiftregister
SWIN	Head switching pulse
SYNC	Control track pulse
TAE	Tape end detection
TAS	Tape start detection
THIO	Threading motor in/out
TMO	Loading motor on/off
TRIA_ALM	Tracking information audio / Audio level indication
TRIV	Tracking information video
TxD	Transmit Data
VBS	Video to signal electronics
VCCD1	Signal before Y-CCD
VCCD2	Signal after Y-CCD
VFRONT	Video from front connector
VFV	Video from front end
VIDOUT1	Video output scart 1
VIDOUT2	Video output scart 2
VIDEOIN1	Video input scart 1
VIDEOIN2	Video input scart 2
VISS	Control sync pulse inversion
VOL	headphone volume
VOUT	Video from OSD part
VSB	Video from signal electronics
W_R	Control track write/read
WR	Write enable for RAM
WTL	Wind tacho left
WTLD	Wind tacho left digital
WTR	Wind tacho right
WTRD	Wind tacho right digital

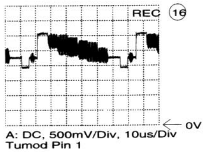
Wiring Diagram


TUNER+MODULATOR
SCART 1/2
1951
1952
CINCH
1954
1955
LO
GNDAIO
RO
GNDAIO
LI
GNDAIO
RI
1953
VideoOut
GNDVSIO
GNDVSIO
VIDEOIN
1957
1956
VFRONT
12VASW
GNDVSIO
VOL
AINFL
GNDAIO
AINFR
8011
AMB
Motherboard ex. Display Control
Component side
8013... # 2693.
1958
1991
EDIT2
GNDE
EDIT1
8012... # 2692.
8021... # 2700.
8022... # 2689.
1911
1912
SH1
SHC
SH2
LH2
LHC
LH1
AH2
AHC
AH1
Rotating Trafo-Conn.
8002... # 2688.
8004... # 2690.
1964
MEH1
MEH2
1960
ARH
GND
APH
AEH2
AEH1
CTL2
CTL1
1948
GNDD
POS
M0
M2
M3
M1
1947
TMO2
N.C.
TMO1
8003... # 2692.
8001... # 2625.
TD4
M1
M3
M2
M0
POS
GNDD
TD2(L8)
MEH2
MEH1
ERASE-HEAD
CAPSTAN-MOTOR-CONN.
1946
GNDD
9_14VM2
CAP
+5D
GNDM2
CREV
GNDD
FG
TD1(L3)
ARH
GND
APH
AEH2
AEH1
CTL2
CTL1
AUDIO-CONTROL-HEAD
TD3(L4)
TMO1
N.C.
TMO2
THREADING MOTOR
MOBO-DECK
ASM
Power Supply
Component side
1945
INT
5VD
12VA
GNDD
N.C.
RXD
SCL
TXD
IPOR
FREE
SDA
1942
GNDM1
GNDDC
GNDM2
33V
14VDC
14VM1
9_14VM2
9_14VM2
28VNEG
GNDD
CSW
12VA
SENSE
5V
5V
GNDA
GNDA
8018... # 2721.
1915
1944
SDA
5VD
SCL
14VDC
HEHI
28NEG
HELO
ISTBY
GNDDC
GNDD
RESET
IPOR
HEST
INT
8020... # 2699.
SOCKET-Pr.:
ACP18
1982
VIDEO
+12V
GNDV
VOL
AUDIO_L
GNDA
AUDIO_R
1980
EDIT2
GNDE
EDIT1
1929
GNDD
AN2
ESD_GND
N.C.
STBYLED_GREEN
STBYLED_RED
8014
AUDIO
R in
L in
VIDEO
VID in
SYNC-EDIT
1922
ADC
Display Control
Component side
ADCP.18
1920
SDA
5VD
SCL
14VDC
HEHI
28NEG
HELO
ISTBY
GNDDC
GNDD
RESET
IPOR
HEST
INT
1923
8024
KEY-Pr.:
LIGHT

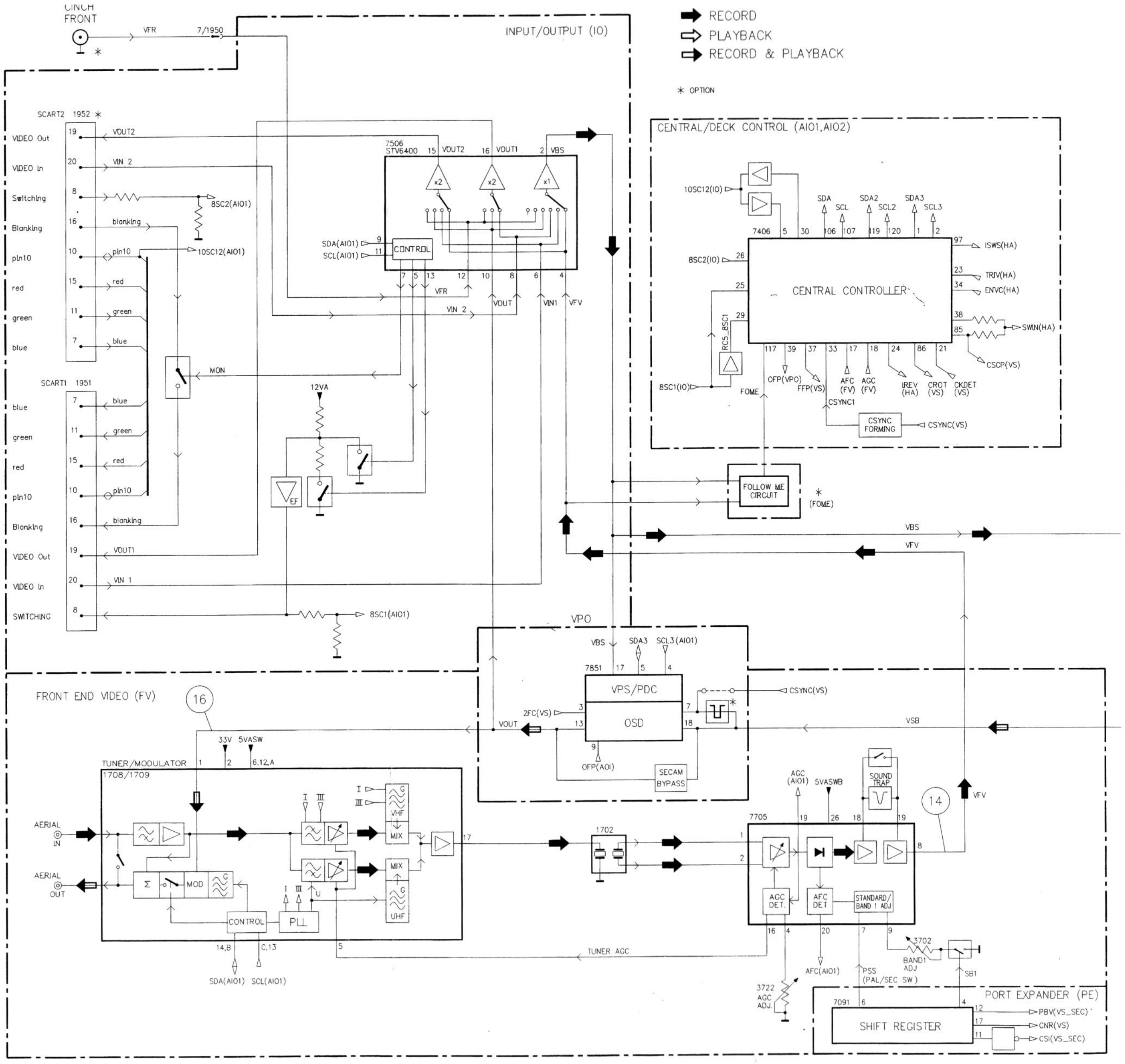
Block Diagram Video



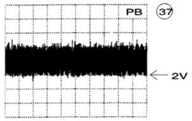
A: DC, 500mV/Div, 10us/Div
IC 7705 Pin 8



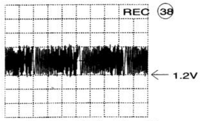
A: DC, 500mV/Div, 10us/Div
Tumod Pin 1


RECORD
PLAYBACK
RECORD & PLAYBACK
* OPTION
CINCH FRONT
VFR
7/1950
INPUT/OUTPUT (IO)
SCART2 1952 *
VIDEO Out
VIDEO In
Switching
Blanking
pin10
red
green
blue
SCART1 1951
SWITCHING
VOUT2
VIN 2
blanking
8SC2(AIO1)
10SC12(AIO1)
MON
VOUT1
VIN 1
8SC1(AIO1)
12VA
EF
7506
STV6400
VOUT2
VOUT1
VBS
x2
x1
SDA(AIO1)
SCL(AIO1)
CONTROL
VFR
VIN 2
VOUT
VIN1
VFV
CENTRAL/DECK CONTROL (AIO1,AIO2)
10SC12(IO)
SDA
SCL
SDA2
SCL2
SDA3
SCL3
7406
8SC2(IO)
CENTRAL CONTROLLER
ISWS(HA)
TRIV(HA)
ENVC(HA)
SWIN(HA)
CSCP(VS)
RC5_8SC1
8SC1(IO)
FOME
OFP(VPO)
FFP(VS)
AFC (FV)
AGC (FV)
IREV (HA)
CROT (VS)
CKDET (VS)
CSYNC1
CSYNC FORMING
CSYNC(VS)
FOLLOW ME CIRCUIT
* (FOME)
VBS
VFV
VPO
SDA3
SCL3(AIO1)
7851
VPS/PDC
OSD
2FC(VS)
VOUT
OFP(AIO)
SECAM BYPASS
CSYNC(VS)
VSB
FRONT END VIDEO (FV)
16
33V
5VASW
TUNER/MODULATOR
1708/1709
AERIAL IN
AERIAL OUT
Σ
MOD
VHF
MIX
UHF
CONTROL
PLL
14,B
C,13
SDA(AIO1)
SCL(AIO1)
TUNER AGC
1702
AGC (AIO1)
5VASWB
SOUND TRAP
14
VFV
7705
ACC DET
AFC DET
STANDARD/ BAND 1 ADJ
AFC(AIO1)
PSS (PAL/SEC SW.)
3702
BAND1 ADJ
SB1
3722 AGC ADJ
PORT EXPANDER (PE)
7091
SHIFT REGISTER
PBV(VS_SEC)
CNR(VS)
CSI(VS_SEC)

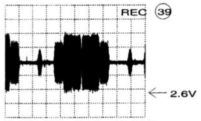
Block Diagram Video



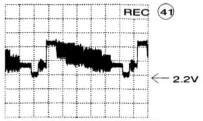
A: AC, 200mV/Div, 20us/Di
IC 7103 Pin 15



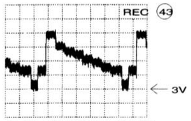
A: AC, 200mV/Div, 20us/Di
FMRV



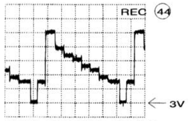
A: AC, 100mV/Div, 10us/Di
CPRV



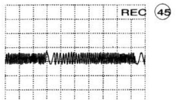
A: AC, 500mV/Div, 10us/Di
IC 7005 Pin 35



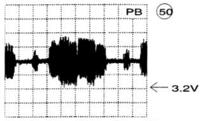
A: AC, 100mV/Div, 10us/Di
IC 7005 Pin 40



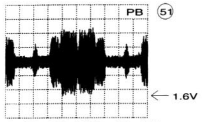
A: AC, 100mV/Div, 10us/Di
IC 7005 Pin 26



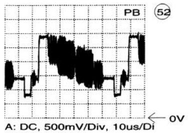
A: DC, 500mV/Div, 10us/Di
IC 7005 Pin 18



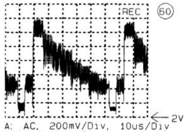
A: AC, 100mV/Div, 10us/Di
IC 7005 Pin 52



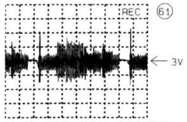
A: AC, 100mV/Div, 10us/Div
IC 7005 Pin 45



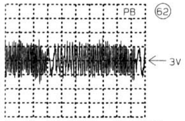
A: DC, 500mV/Div, 10us/Di
IC 7005 Pin 35



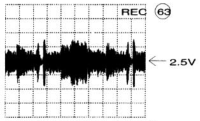
A: AC, 200mV/Div, 10us/Div
IC7072 Pin 15



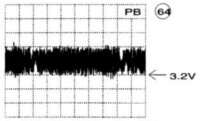
A: AC, 200mV/Div, 10us/Div
IC 7072 Pin 11



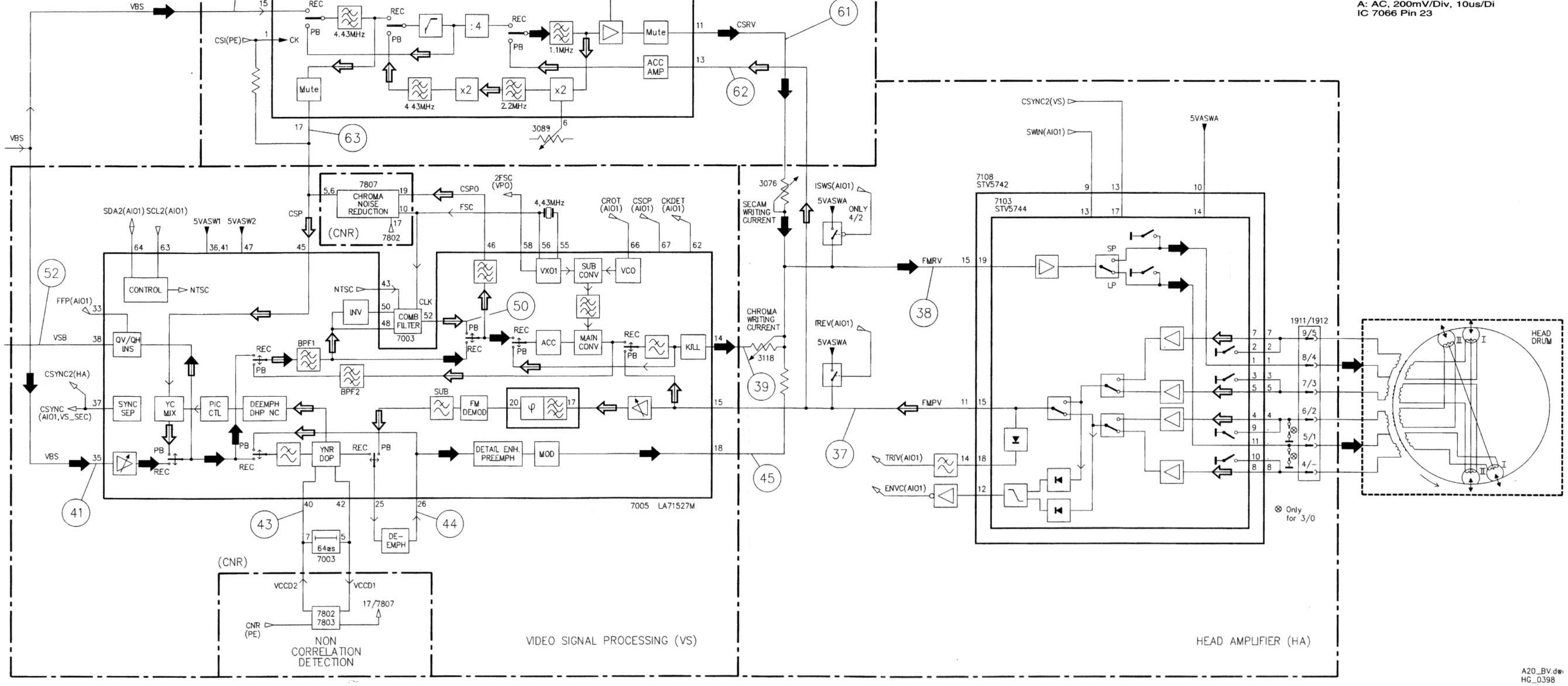
A. AC, 50mV/Div, 10us/Div
IC 7072 Pin 13



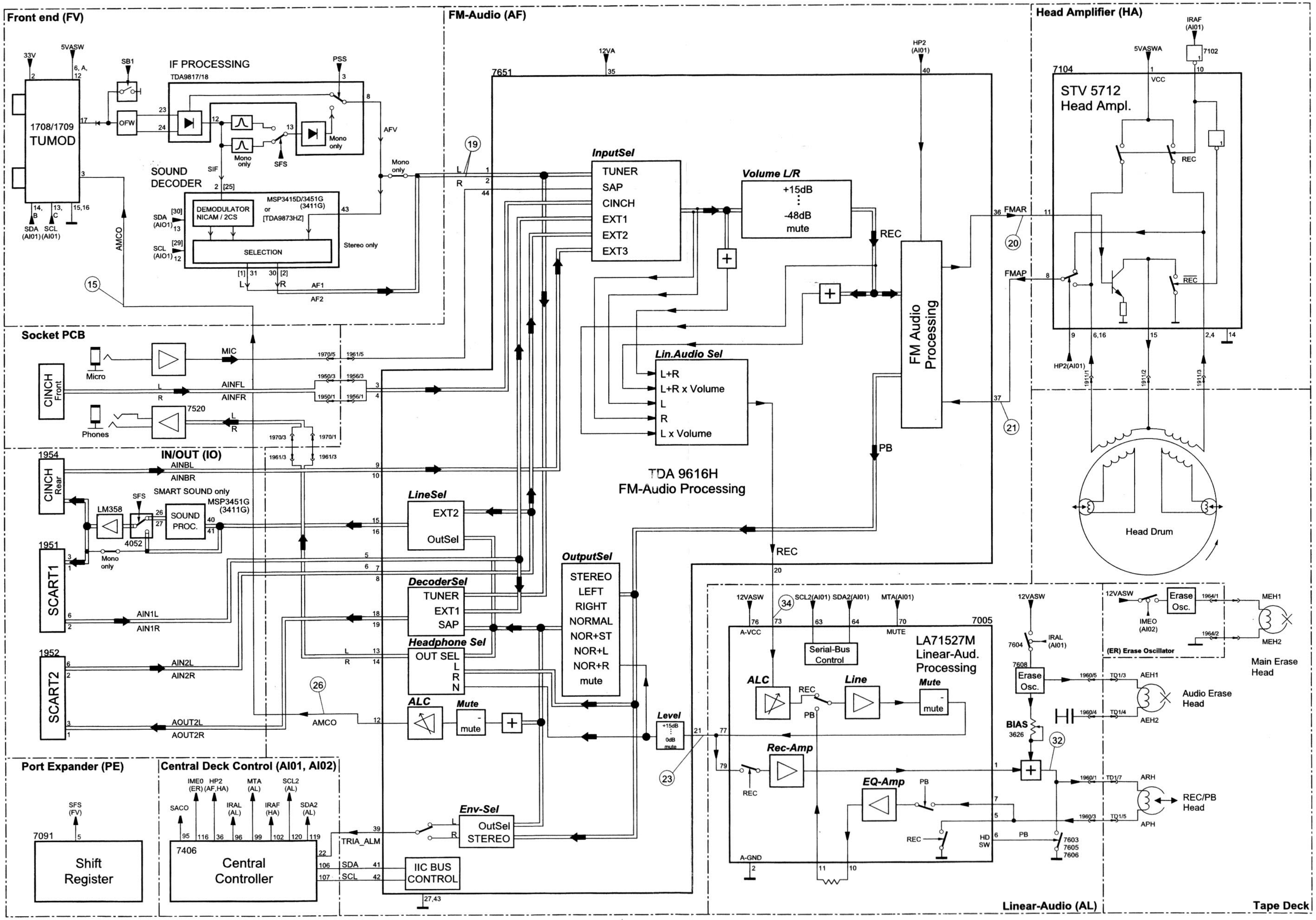
A: AC, 200mV/Div, 10us/Di
IC 7066 Pin 17



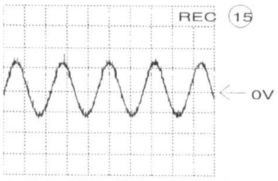
A: AC, 200mV/Div, 10us/Di
IC 7066 Pin 23


CHROMA PROCESSING SECAM L (VS-SEC)
60
5VASWA
28
7072 LA7339A
3088
10
VBS
15
REC
PB
4.43MHz
REC
PB
:4
REC
PB
1.1MHz
Mute
11
CSRV
61
CSI(PE)
1
CK
ACC AMP
13
62
Mute
4 43MHz
x2
2.2MHz
x2
17
63
3089
6
VBS
7807
5,6
CHROMA NOISE REDUCTION
19
10
17
7802
(CNR)
CSPO
2FSC (VPO)
FSC
4,43MHz
CROT (AIO1)
CSCP (AIO1)
CKDET (AIO1)
SDA2(AIO1) SCL2(AIO1)
5VASW1
5VASW2
CSP
64
63
36,41
47
45
46
58
56
55
66
67
62
52
CONTROL
NTSC
NTSC
43
VXO1
SUB CONV
VCO
FFP(AIO1)
33
INV
50
48
CLK
COMB FILTER
52
7003
50
VSB
38
QV/QH INS
REC
PB
REC
ACC
MAIN CONV
REC
PB
KILL
14
BPF1
REC
PB
BPF2
CSYNC2(HA)
CSYNC (AIO1,VS_SEC)
37
SYNC SEP
YC MIX
PIC CTL
DEEMPH DHP NC
SUB
FM DEMOD
20
φ
17
15
VBS
35
PB
REC
PB
REC
YNR DOP
REC
PB
DETAIL ENH. PREEMPH
MOD
18
41
40
42
25
26
7005 LA71527M
43
7
5
64μs
7003
DE-EMPH
44
(CNR)
VCCD2
VCCD1
17/7807
CNR (PE)
7802 7803
NON CORRELATION DETECTION
VIDEO SIGNAL PROCESSING (VS)
3076
SECAM WRITING CURRENT
ISWS(AIO1)
5VASWA
ONLY 4/2
CHROMA WRITING CURRENT
3118
39
IREV(AIO1)
5VASWA
37
45
CSYNC2(VS)
SWIN(AIO1)
5VASWA
7108 STV5742
9
13
10
7103 STV5744
13
17
14
FMRV
15
19
SP
LP
38
FMPV
11
15
TRIV(AIO1)
14
18
ENVC(AIO1)
12
7
2
1
3
5
4
9
11
10
8
1911/1912
9/5
8/4
7/3
6/2
5/1
4/–
⊗ Only for 3/0
HEAD DRUM
I
II
HEAD AMPLIFIER (HA)
A20_BV.dw
HG_0398

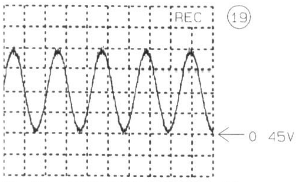
Block Diagram Audio


Front end (FV)
FM-Audio (AF)
Head Amplifier (HA)
33V
5VASW
SB1
IF PROCESSING
TDA9817/18
PSS
1708/1709
TUMOD
OFW
Mono only
SFS
SIF
SOUND DECODER
AFV
SDA (AI01)
SCL (AI01)
DEMODULATOR NICAM / 2CS
MSP3415D/3451G (3411G)
or
[TDA9873HZ]
SELECTION
Stereo only
AF1
AF2
AMCO
12VA
HP2 (AI01)
7651
InputSel
TUNER
SAP
CINCH
EXT1
EXT2
EXT3
Volume L/R
+15dB
-48dB
mute
REC
PB
FM Audio Processing
Lin.Audio Sel
L+R
L+R x Volume
L
R
L x Volume
TDA 9616H
FM-Audio Processing
FMAR
FMAP
IRAF (AI01)
5VASWA
7102
7104
STV 5712
Head Ampl.
VCC
Head Drum
Socket PCB
CINCH Front
Micro
MIC
AINFL
AINFR
Phones
7520
1954
IN/OUT (IO)
CINCH Rear
AINBL
AINBR
SMART SOUND only
MSP3451G (3411G)
LM358
SOUND PROC.
4052
1951
SCART1
AIN1L
AIN1R
1952
SCART2
AIN2L
AIN2R
AOUT2L
AOUT2R
LineSel
EXT2
OutSel
DecoderSel
TUNER
EXT1
SAP
Headphone Sel
OUT SEL
L
R
N
ALC
Mute
mute
OutputSel
STEREO
LEFT
RIGHT
NORMAL
NOR+ST
NOR+L
NOR+R
mute
Level
+15dB
0dB
mute
Env-Sel
OutSel
STEREO
TRIA_ALM
SDA
SCL
IIC BUS CONTROL
Port Expander (PE)
SFS (FV)
7091
Shift Register
Central Deck Control (AI01, AI02)
IME0 (ER)
HP2 (AF,HA)
MTA (AL)
SCL2 (AL)
SACO
IRAL (AL)
IRAF (HA)
SDA2 (AL)
7406
Central Controller
12VASW
SCL2(AI01)
SDA2(AI01)
MTA(AI01)
A-VCC
Serial-Bus Control
MUTE
7005
LA71527M
Linear-Aud. Processing
ALC
Line
Mute
mute
Rec-Amp
EQ-Amp
A-GND
HD SW
7603
7605
7606
7604
IRAL (AI01)
7608
Erase Osc.
BIAS
3626
IMEO (AI02)
(ER) Erase Oscillator
MEH1
MEH2
Main Erase Head
AEH1
AEH2
Audio Erase Head
ARH
APH
REC/PB Head
Linear-Audio (AL)
Tape Deck
⑮
⑲
⑳
㉑
㉓
㉖
㉜
㉞

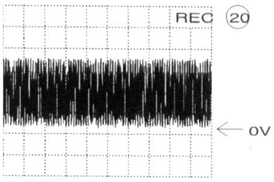
Oscillograms Block Diagram Audio



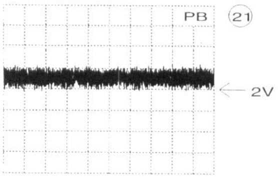
A: DC, 500mV/Div, 500us/Div
Tumod Pin 3



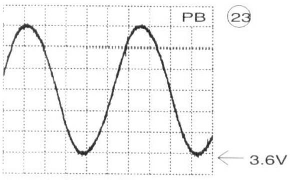
A: AC, 100mV/Div, 500us/Div
IC 7761 Pin 37/38



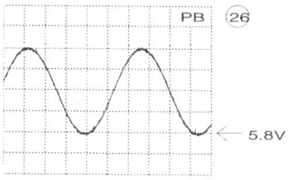
A: DC, 200mV/Div, 5ms/Div
FMAR



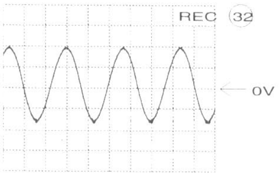
A: AC, 200mV/Div, 500us/Div
FMAP



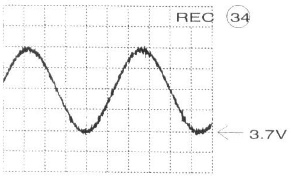
A: AC, 100mV/Div, 200us/Div
IC 7651 Pin 21



A: AC, 200mV/Div, 200us/Div
IC 7651 Pin 18/19

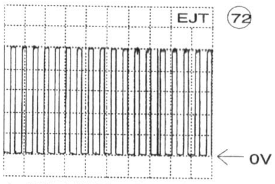


A: DC, 20 V/Div, 5us/Div
Connector 1960 Pin 1

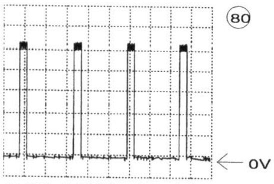


A: AC, 50mV/Div, 200us/Div
IC 7005 Pin 73

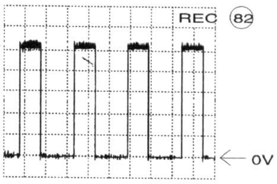
Oscillograms Block Diagram Digital



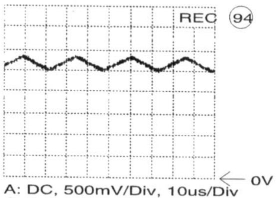
A: DC, 1 V/Div, 20ms/Div
IC 7406 Pin 3



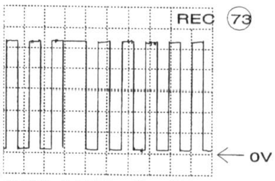
A: DC, 1 V/Div, 10us/Div
IC 7406 Pin 89



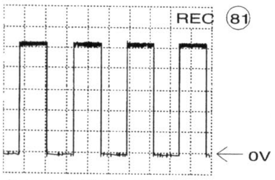
A: DC, 1 V/Div, 10us/Div
IC 7406 Pin 87



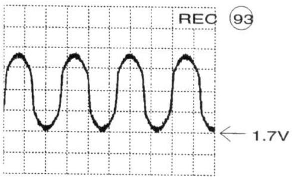
A: DC, 500mV/Div, 10us/Div
Connector 1946 Pin 6



A: DC, 1 V/Div, 2ms/Div
IC 7406 Pin 28

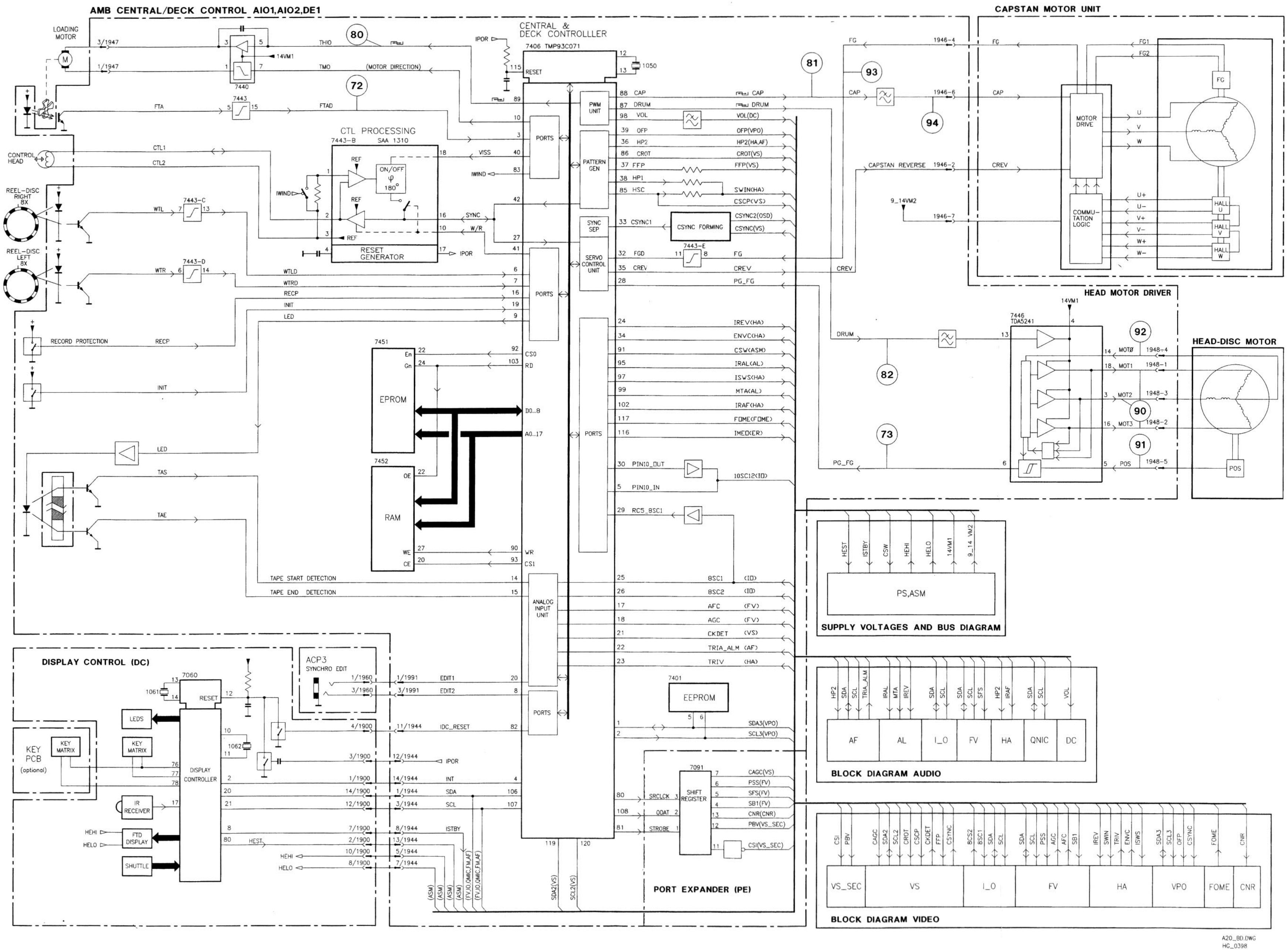


A: DC, 1 V/Div, 10us/Div
IC 7406 Pin 88

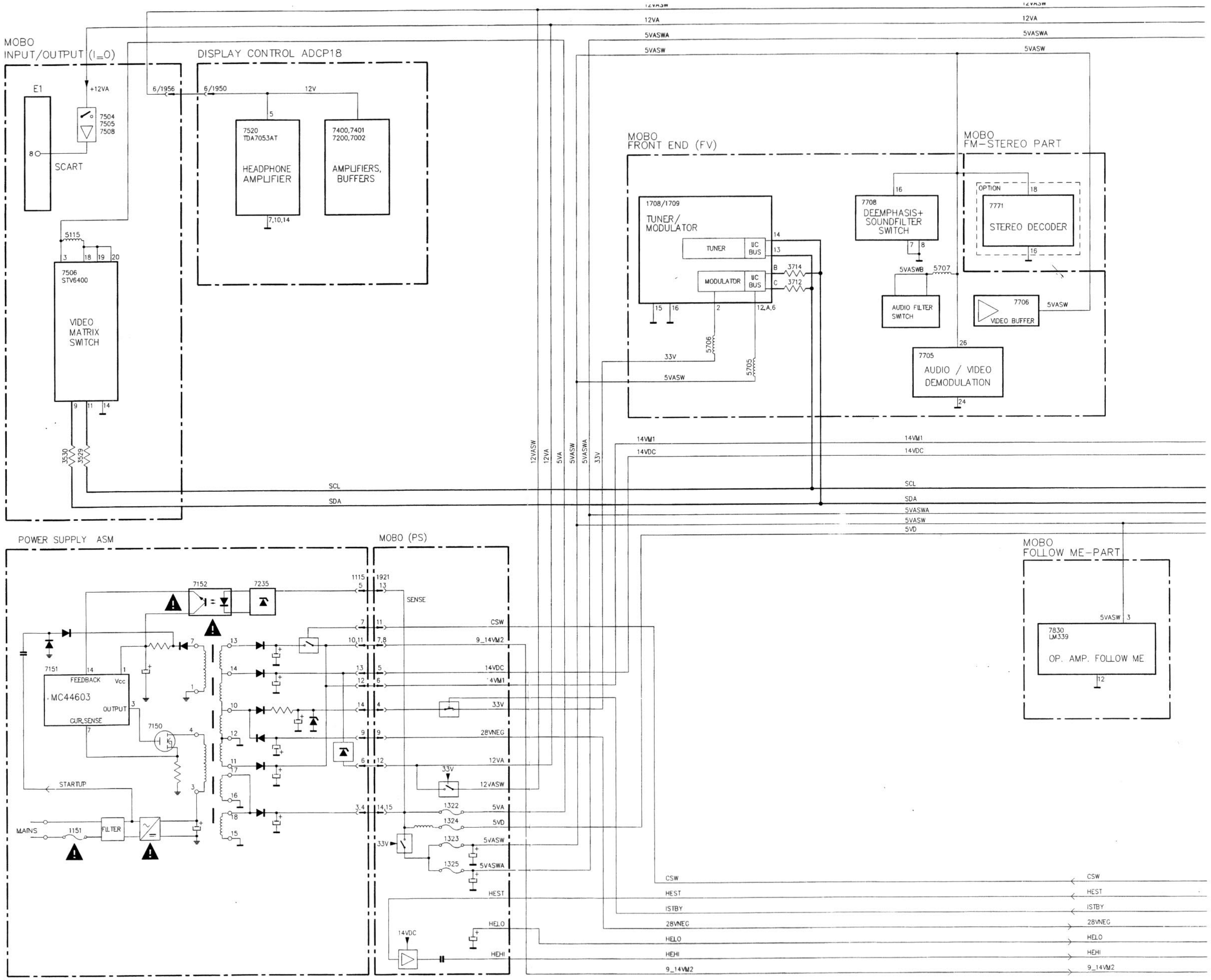


A: DC, 500mV/Div, 500us/Div
Connector 1946 Pin 4

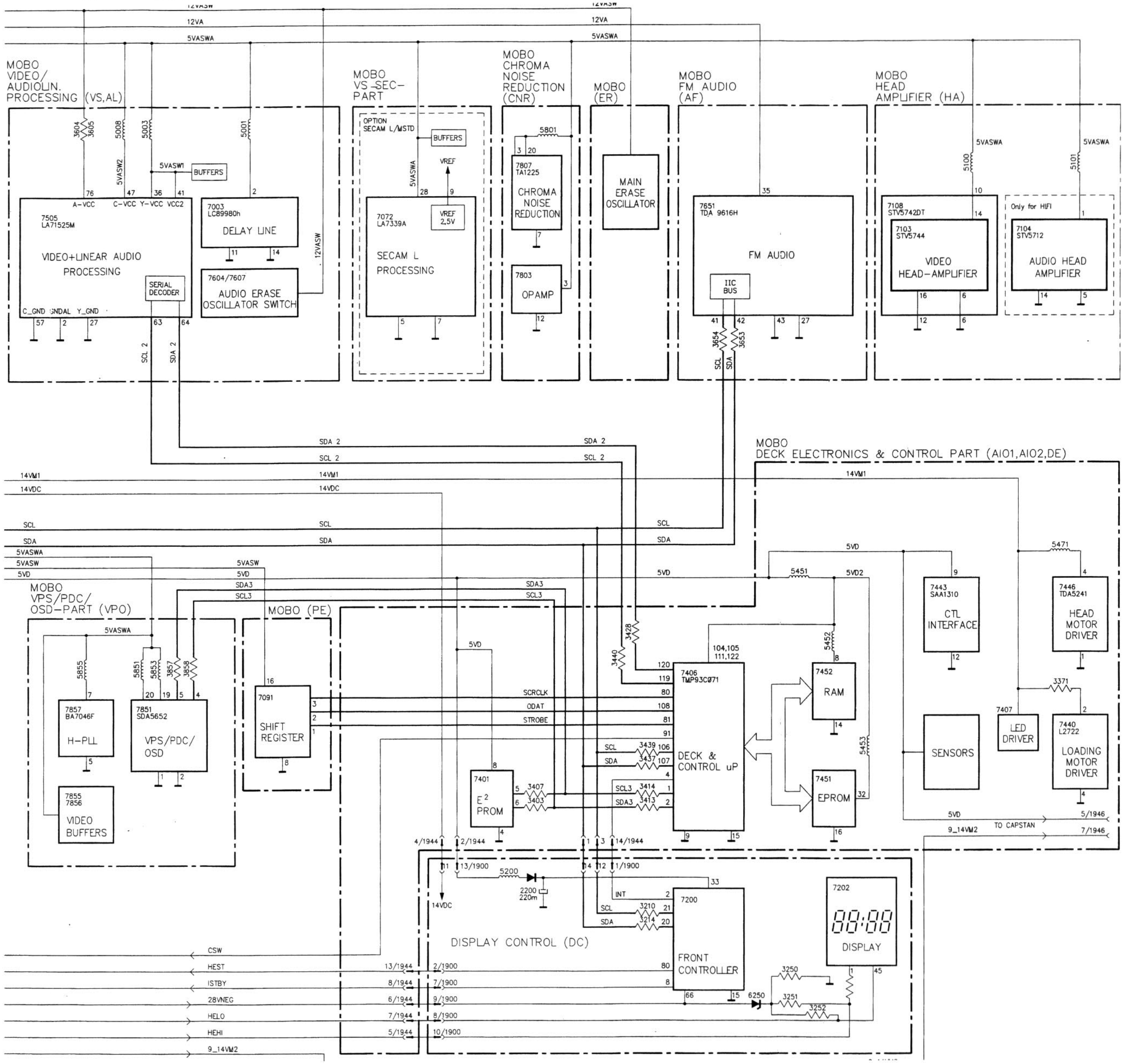
Block Diagram Digital


AMB CENTRAL/DECK CONTROL AIO1,AIO2,DE1
LOADING MOTOR
3/1947
1/1947
7440
THIO
TMO
(MOTOR DIRECTION)
14VM1
80
72
7443
FTA
FTAD
CONTROL HEAD
CTL1
CTL2
CTL PROCESSING
7443-B SAA 1310
REF
ON/OFF φ 180°
IWIND
VISS
SYNC
W/R
RESET GENERATOR
IPOR
REEL-DISC RIGHT 8X
REEL-DISC LEFT 8X
7443-C
7443-D
WTL
WTR
WTLD
WTRD
RECP
INIT
LED
RECORD PROTECTION
TAS
TAE
TAPE START DETECTION
TAPE END DETECTION
CENTRAL & DECK CONTROLLLER
7406 TMP93C071
RESET
1050
PORTS
PWM UNIT
PATTERN GEN
SYNC SEP
SERVO CONTROL UNIT
ANALOG INPUT UNIT
CSYNC FORMING
7443-E
7451
EPROM
En
Gn
CS0
RD
D0...8
A0...17
7452
RAM
OE
WE
CE
WR
CS1
CAP
DRUM
VOL
OFP
HP2
CROT
FFP
HP1
HSC
CSYNC1
FGD
CREV
PG_FG
VOL(DC)
OFP(VPO)
HP2(HA,AF)
CROT(VS)
FFP(VS)
SWIN(HA)
CSCP(VS)
CSYNC2(OSD)
CSYNC(VS)
FG
IREV(HA)
ENVC(HA)
CSW(ASM)
IRAL(AL)
ISWS(HA)
MTA(AL)
IRAF(HA)
FOME(FOME)
IMED(ER)
PIN10_OUT
PIN10_IN
IOSC12(IO)
RC5_8SC1
8SC1 (IO)
8SC2 (IO)
AFC (FV)
AGC (FV)
CKDET (VS)
TRIA_ALM (AF)
TRIV (HA)
81
93
94
82
73
CAPSTAN MOTOR UNIT
1946-4
1946-6
1946-2
1946-7
CAPSTAN REVERSE
9_14VM2
FG1
FG2
MOTOR DRIVE
COMMU-TATION LOGIC
U
V
W
U+
U-
V+
V-
W+
W-
HALL U
HALL V
HALL W
HEAD MOTOR DRIVER
14VM1
7446 TDA5241
MOTØ
MOT1
MOT2
MOT3
POS
1948-4
1948-1
1948-3
1948-2
1948-5
92
90
91
HEAD-DISC MOTOR
POS
DISPLAY CONTROL (DC)
7060
1061
RESET
LEDS
KEY PCB (optional)
KEY MATRIX
1062
DISPLAY CONTROLLER
IR RECEIVER
FTD DISPLAY
SHUTTLE
HEHI
HELO
HEST
ACP3 SYNCHRO EDIT
1/1960
3/1960
1/1991
3/1991
EDIT1
EDIT2
4/1900
11/1944
IDC_RESET
3/1900
12/1944
1/1900
14/1944
INT
14/1900
1/1944
SDA
12/1900
3/1944
SCL
7/1900
8/1944
ISTBY
2/1900
13/1944
10/1900
5/1944
8/1900
7/1944
(ASM)
(FV,IO,QNIC,FM,AF)
SDA2(VS)
SCL2(VS)
7401
EEPROM
SDA3(VPO)
SCL3(VPO)
7091
SHIFT REGISTER
SRCLCK
QDAT
STROBE
CAGC(VS)
PSS(FV)
SFS(FV)
SB1(FV)
CNR(CNR)
PBV(VS_SEC)
CSI(VS_SEC)
PORT EXPANDER (PE)
HEST ISTBY CSW HEHI HELO 14VM1 9_14 VM2
PS,ASM
SUPPLY VOLTAGES AND BUS DIAGRAM
HP2 SDA SCL TRIA_ALM IRAL MTA IREV SDA SCL SDA SCL SFS HP2 IRAF SDA SCL VOL
AF AL I_O FV HA QNIC DC
BLOCK DIAGRAM AUDIO
CSI PBV CAGC SDA2 SCL2 CROT CSCP CKDET FFP CSYNC 8CS2 8SC1 SDA SCL SDA SCL PSS AGC AFC SB1 IREV SWIN TRIV ENVC ISWS SDA3 SCL3 OFP CSYNC FOME CNR
VS_SEC VS I_O FV HA VPO FOME CNR
BLOCK DIAGRAM VIDEO
A20_BD.DWG
HC_0398

Block Diagram Supply & I^{2}C

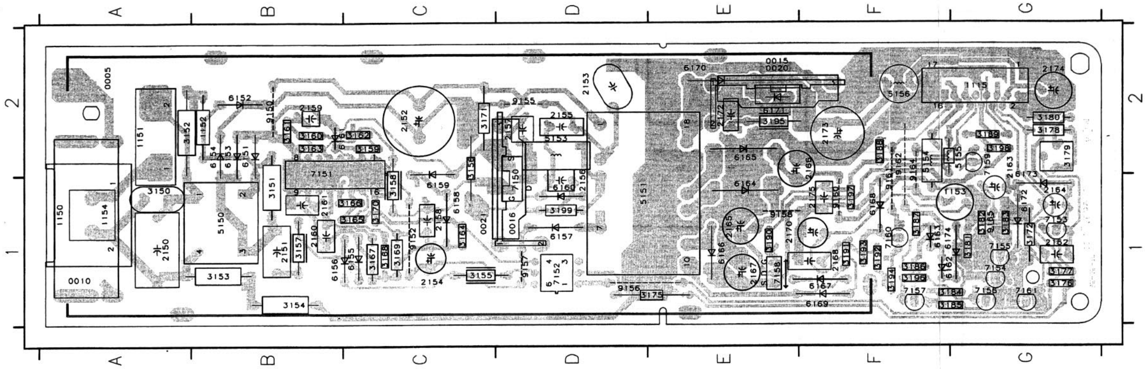

12VASW
12VA
5VASWA
5VASW
MOBO
INPUT/OUTPUT (I_0)
E1
+12VA
7504
7505
7508
8
SCART
5115
3
18
19
20
7506
STV6400
VIDEO
MATRIX
SWITCH
9
11
14
3530
3529
6/1956
6/1950
12V
DISPLAY CONTROL ADCP18
5
7520
TDA7053AT
HEADPHONE
AMPLIFIER
7,10,14
7400,7401
7200,7002
AMPLIFIERS,
BUFFERS
MOBO
FRONT END (FV)
1708/1709
TUNER/
MODULATOR
TUNER
I²C BUS
MODULATOR
I²C BUS
14
13
B
C
3714
3712
15
16
2
12,A,6
5706
5705
33V
5VASW
7708
DEEMPHASIS+
SOUNDFILTER
SWITCH
16
7
8
5VASWB
5707
AUDIO FILTER
SWITCH
MOBO
FM-STEREO PART
OPTION
18
7771
STEREO DECODER
16
7706
VIDEO BUFFER
5VASW
26
7705
AUDIO / VIDEO
DEMODULATION
24
12VASW
12VA
5VA
5VASW
5VASWA
33V
14VM1
14VDC
SCL
SDA
5VASWA
5VASW
5VD
POWER SUPPLY ASM
MOBO (PS)
7152
7235
1115
1921
5
13
SENSE
7
11
CSW
10,11
7,8
9_14VM2
13
5
14VDC
12
6
14VM1
14
4
33V
9
9
28VNEG
6
12
12VA
33V
12VASW
3,4
14,15
1322
5VA
1324
5VD
1323
5VASW
1325
5VASWA
33V
HEST
HELO
14VDC
HEHI
7151
14
1
FEEDBACK
Vcc
MC44603
OUTPUT
3
CUR.SENSE
7
7150
4
13
14
1
10
12
11
17
16
18
15
3
STARTUP
MAINS
1151
FILTER
MOBO
FOLLOW ME-PART
5VASW
3
7830
LM339
OP. AMP. FOLLOW ME
12
CSW
HEST
ISTBY
28VNEG
HELO
HEHI
9_14VM2
CSW
HEST
ISTBY
28VNEG
HELO
HEHI
9_14VM2

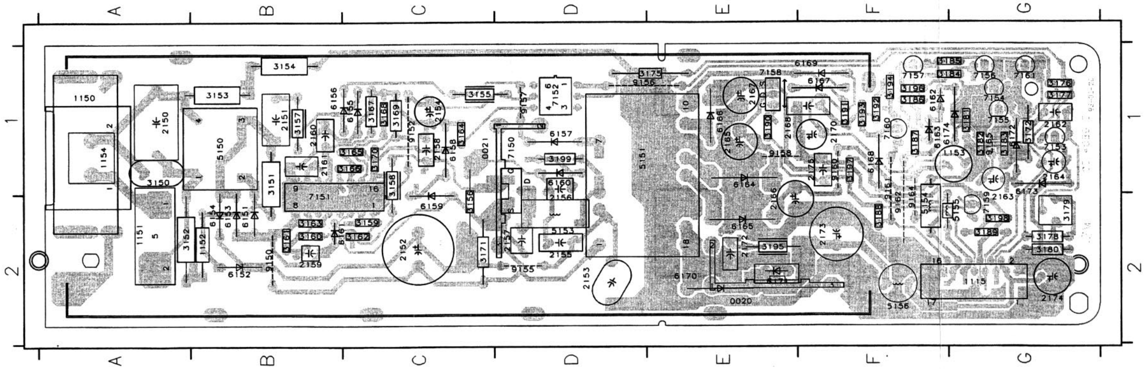
Block Diagram Supply & I²C

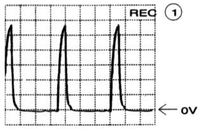

12VASW
12VA
5VASWA
MOBO VIDEO/ AUDIOLIN. PROCESSING (VS,AL)
3604
3605
5008
5003
5001
5VASW2
5VASW1
BUFFERS
7505 LA71525M
A-VCC C-VCC Y-VCC VCC2
VIDEO+LINEAR AUDIO PROCESSING
SERIAL DECODER
C_GND GNDAL Y_GND
7003 LC89980h
DELAY LINE
7604/7607
AUDIO ERASE OSCILLATOR SWITCH
12VASW
SCL 2
SDA 2
MOBO VS-SEC-PART
OPTION SECAM L/MSTD
BUFFERS
VREF
5VASWA
7072 LA7339A
VREF 2,5V
SECAM L PROCESSING
MOBO CHROMA NOISE REDUCTION (CNR)
5801
7807 TA1225
CHROMA NOISE REDUCTION
7803
OPAMP
MOBO (ER)
MAIN ERASE OSCILLATOR
MOBO FM AUDIO (AF)
7651 TDA 9616H
FM AUDIO
IIC BUS
3654
3653
SCL
SDA
MOBO HEAD AMPLIFIER (HA)
5VASWA
5100
5101
7108 STV5742DT
7103 STV5744
VIDEO HEAD-AMPLIFIER
Only for HIFI
7104 STV5712
AUDIO HEAD AMPLIFIER
SDA 2
SCL 2
14VM1
14VDC
SCL
SDA
5VASWA
5VASW
5VD
SDA3
SCL3
MOBO DECK ELECTRONICS & CONTROL PART (AI01,AI02,DE)
5451
5VD2
5471
7443 SAA1310
CTL INTERFACE
7446 TDA5241
HEAD MOTOR DRIVER
3371
7407
LED DRIVER
7440 L2722
LOADING MOTOR DRIVER
SENSORS
TO CAPSTAN
5/1946
7/1946
9_14VM2
MOBO VPS/PDC/ OSD-PART (VPO)
5855
5851
5853
3857
3858
7857 BA7046F
H-PLL
7851 SDA5652
VPS/PDC/ OSD
7855 7856
VIDEO BUFFERS
MOBO (PE)
7091
SHIFT REGISTER
SCRCLK
ODAT
STROBE
3428
3440
104,105 111,122
7406 TMP93C071
DECK & CONTROL uP
3439
3437
3414
3413
SCL3
SDA3
7401
E² PROM
3407
3403
5452
7452
RAM
5453
7451
EPROM
4/1944
2/1944
14/1944
13/1900
1/1900
5200
2200 220m
14VDC
INT
3210
3214
7200
FRONT CONTROLLER
7202
88:88
DISPLAY
DISPLAY CONTROL (DC)
3250
6250
3251
3252
CSW
HEST
ISTBY
28VNEG
HELO
HEHI
9_14VM2
13/1944
8/1944
6/1944
7/1944
5/1944
2/1900
7/1900
9/1900
8/1900
10/1900

Power Supply (ASM)

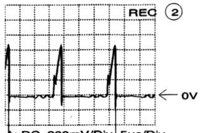
0005	A2
0010	A1
0015	E2
0016	D1
0020	E2
0021	C1
1115	G2
1150	A1
1151	A2
1152	B2
1153	G1
1154	A1
2150	A1
2151	B1
2152	C2
2153	D2
2154	C1
2155	D2
2156	D1
2157	D2
2158	C1
2159	B2
2160	B1
2161	B1
2162	G1
2163	G2
2164	G1
2165	E1
2166	F2
2167	E1
2168	F1
2170	E1
2172	E2
2173	F2
2174	G2
2175	F1
3150	A1
3151	B1
3152	A2
3153	B1
3154	B1
3155	C1
3156	C2
3157	B1
3158	C1
3159	C2
3160	B2
3161	B2
3162	C2
3163	B2
3164	C1
3165	C1
3166	C1
3167	C1
3168	C1
3169	C1
3170	C1
3171	C2
3172	G1
3175	E1
3176	G1
3177	G1
3178	G2
3179	G2
3180	G2
3181	G1
3182	G1
3183	G1
3184	G1
3185	G1
3186	F1
3187	F1
3188	F2
3189	G2
3190	E1
3191	F1
3192	F1
3193	F1
3194	F1
3195	E2
3196	F1
3197	F1
3198	G2
3199	D1
5150	B1
5151	D1
5153	D2
5154	F2
5155	G2
5156	F2
6151	B2
6152	B2
6153	B2
6154	B2
6155	C1
6156	B1
6157	D1
6158	C1
6159	C1
6160	D1
6161	B2
6162	F1
6163	F1
6164	E1
6165	E2
6166	E1
6167	F1
6168	F1
6169	F1
6170	E2
6171	E2
6172	G1
6173	G1
6174	F1
7150	D1
7151	B2
7152	D1
7153	G1
7154	G1
7155	G1
7156	G1
7157	F1
7158	E1
7159	G2
7160	F1
7161	G1
9150	B2
9152	C1
9155	D2
9156	D1
9157	D1
9158	E1
9160	F1
9161	F1
9162	F2
9164	F2
9165	G1



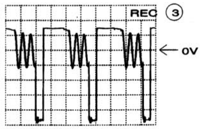




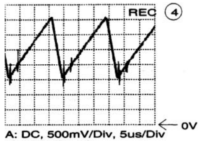
A: DC, 2 V/Div, 5us/Div
Gate 7150



A: DC, 200mV/Div, 5us/Div
Source 7150

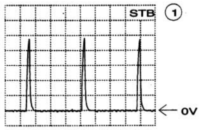


A: DC, 10 V/Div, 5us/Div
5151 Pin 7

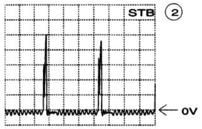


A: DC, 500mV/Div, 5us/Div
IC 7151 Pin 10

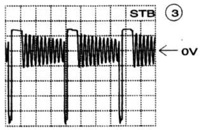
Low Power Standby



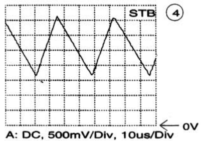
A: DC, 2 V/Div, 10us/Div
Gate 7150



A: DC, 100mV/Div, 10us/Div
Source 7150



A: DC, 10 V/Div, 10us/Div
5151 Pin 7

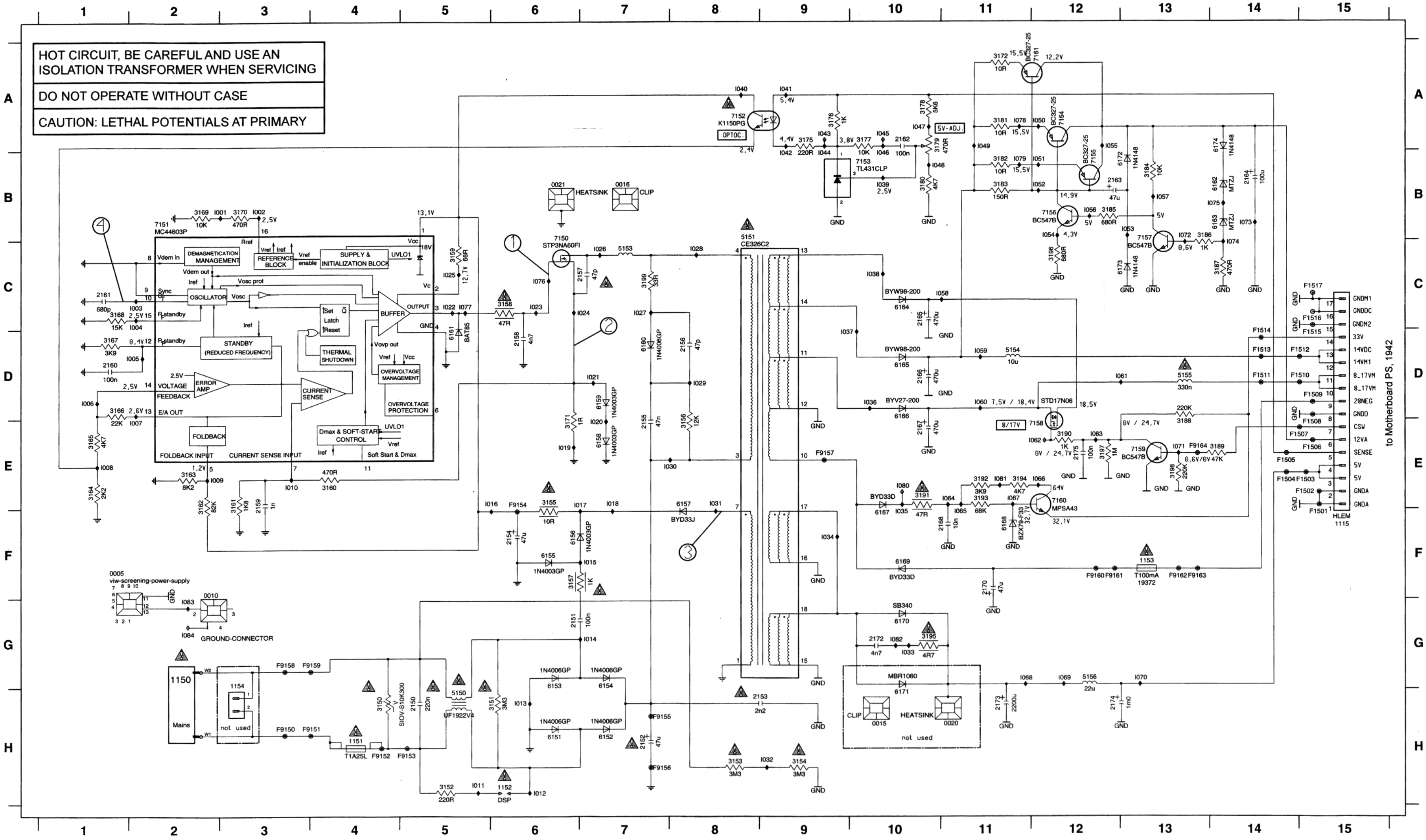


A: DC, 500mV/Div, 10us/Div
IC 7151 Pin 10

Power Supply (ASM)

Interconnections	Manual Page							
PS 3-18	FM-STEREO-TDA 3-22	AF 3-24	AL 3-26	HA 3-30	CNR 3-34	AIO1 3-36	DE 3-39	VPS; FOME; PE 3-42
FV 3-20	FM-STEREO-MSP 3-23	ER 3-25	VS 3-29	VS-SEC 3-33	IO 3-35	AIO2 3-40	VPO 3-41	

0005 F1
0010 F2
0015 H10
0016 B7
0020 H11
0021 B6
1115 F15
1150 G2
1151 H4
1152 H6
1153 F13
1154 G3
2150 H5
2151 G6
2152 H7
2153 H9
2154 F6
2155 E7
2156 D8
2157 C7
2158 D6
2159 E3
2160 D1
2161 C1
2162 A10
2163 B12
2164 B14
2165 C10
2166 D10
2167 E10
2168 F11
2170 F11
2172 G10
2173 H11
2174 H12
2175 E12
3150 H4
3151 H6
3152 H5
3153 H8
3154 H9
3155 E6
3156 E8
3157 F6
3158 C6
3159 C5
3160 E4
3161 E3
3162 E2
3163 E2
3164 E1
3165 E1
3166 D1
3167 D1
3168 C1
3169 B2
3170 B3
3171 E6
3172 A11
3175 A9
3176 A9
3177 A10
3178 A10
3179 A10
3180 B10
3181 A11
3182 B11
3183 B11
3184 B13
3185 B12
3186 B13
3187 C14
3188 E13
3189 E14
3190 E12
3191 E10
3192 E11
3193 E11
3194 E11
3195 G10
3196 C12
3197 E12
3198 E13
3199 C7
5150 H5
5151 B8
5153 C7
5154 D11
5155 D13
5156 G12
6151 H6
6152 H7
6153 G6
6154 G7
6155 F6
6156 F6
6157 E8
6158 E7
6159 D7
6160 D7
6161 D5
6162 B14
6163 B14
6164 C10
6165 D10
6166 D10
6167 F10
6168 F11
6169 F10
6170 G10
6171 H10
6172 B13
6173 C13
6174 A14
7150 C6
7151 B2
7152 A8
7153 B10
7154 A12
7155 B12
7156 B12
7157 C13
7158 E12
7159 E13
7160 E12
7161 A12
F1501 F15
F1502 E15
F1503 E15
F1504 E14
F1505 E14
F1506 E15
F1507 E15
F1508 E15
F1509 D15
F1510 D15
F1511 D14
F1512 D15
F1513 D14
F1514 D14
F1515 D15
F1516 C15
F1517 C15
F9150 H3
F9151 H4
F9152 H4
F9153 H5
F9154 E6
F9155 H7
F9156 H7
F9157 E9
F9158 G3
F9159 G4
F9160 F12
F9161 F12
F9162 F13
F9163 F13
F9164 E13
I001 B3
I002 B3
I003 C2
I004 C2
I005 D2
I006 D1
I007 E2
I008 E1
I009 E2
I010 E3
I011 H5
I012 H6
I013 H6
I014 G7
I015 F7
I016 E6
I017 E7
I018 E7
I019 E6
I020 E7
I021 D7
I022 C5
I023 C6
I024 C7
I025 C5
I026 C7
I027 C7
I028 C8
I029 D8
I030 E8
I031 E8
I032 H9
I033 G10
I034 F9
I035 F10
I036 D10
I037 D9
I038 C10
I039 B10
I040 A8
I041 A9
I042 B9
I043 A9
I044 B9
I045 A10
I046 B10
I047 A10
I048 B10
I049 A11
I050 A12
I051 B12
I052 B12
I053 B13
I054 B12
I055 A12
I056 B12
I057 B13
I058 C11
I059 D11
I060 D11
I061 D13
I062 E12
I063 E12
I064 E11
I065 F11
I066 E12
I067 E11
I068 G11
I069 G12
I070 G13
I071 E13
I072 B13
I073 B14
I074 C14
I075 B14
I076 C6
I077 C5
I078 A11
I079 B11
I080 E10
I081 E11
I082 G10
I083 G2
I084 G2



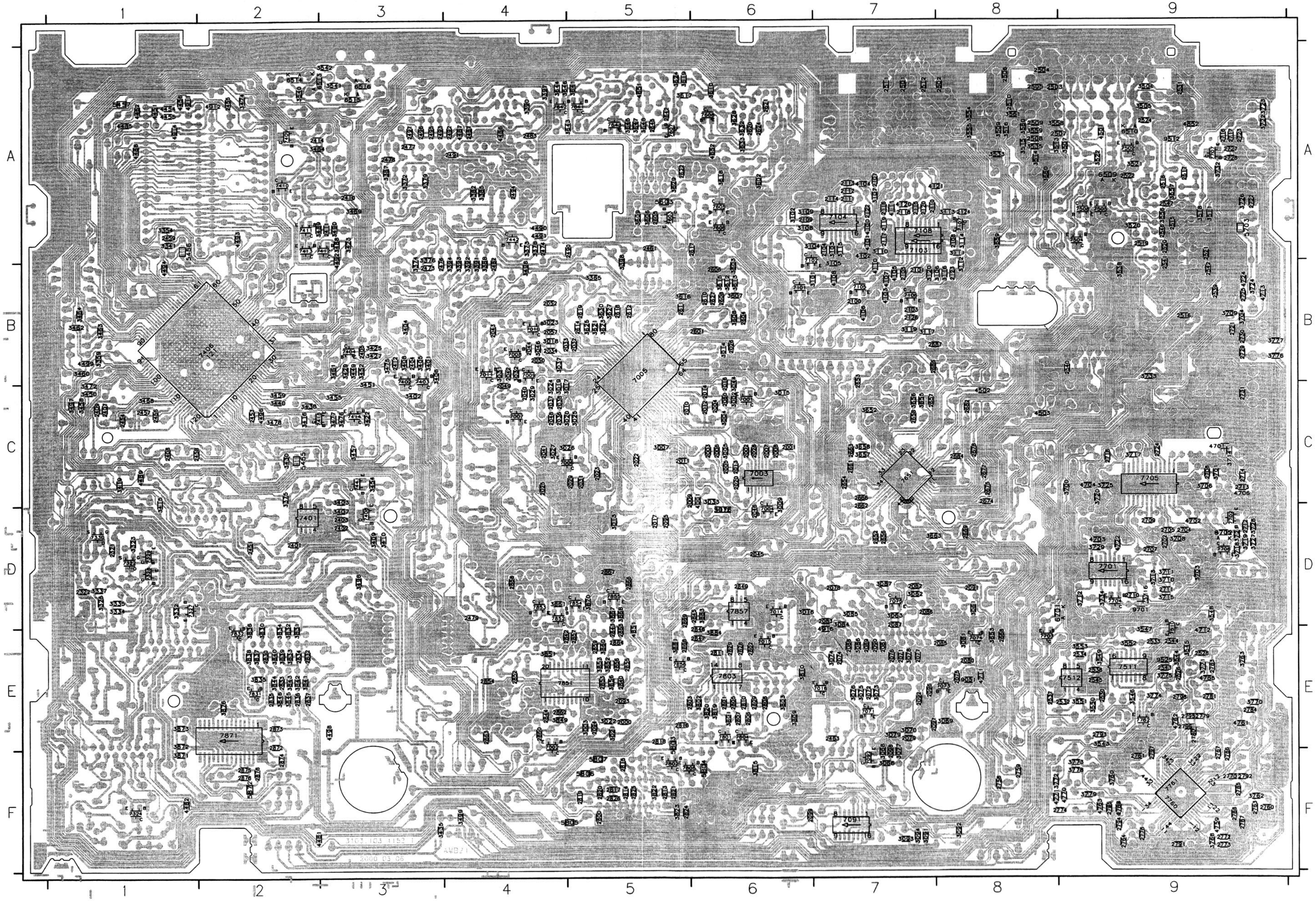
HOT CIRCUIT, BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING

DO NOT OPERATE WITHOUT CASE

CAUTION: LETHAL POTENTIALS AT PRIMARY

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H
7151 MC44603P
DEMAGNETIZATION MANAGEMENT
REFERENCE BLOCK
SUPPLY & INITIALIZATION BLOCK
UVLO1
OSCILLATOR
BUFFER
STANDBY (REDUCED FREQUENCY)
Latch
THERMAL SHUTDOWN
ERROR AMP
CURRENT SENSE
OVERVOLTAGE MANAGEMENT
OVERVOLTAGE PROTECTION
FOLDBACK
Dmax & SOFT-START CONTROL
FOLDBACK INPUT
CURRENT SENSE INPUT
Soft Start & Dmax
VOLTAGE FEEDBACK
E/A OUT
Vdem in
Sync
Rstandby
OUTPUT
13,1V
2,5V
7150 STP3NA60FI
5151 CE326C2
7152 K1150PG
OPTOC.
7153 TL431CLP
5V-ADJ.
7161 BC327-25
7154 BC327-25
7155 BC327-25
7156 BC547B
7157 BC547B
7158 STD17N06
7159 BC547B
7160 MPSA43
BYW98-200
BYV27-200
BYD33D
BYD33J
SB340
MBR1060
1N4006GP
1N4003GP
BAT85
1N4148
MTZJ
UF1922V4
SIOV-S10K300
0021 HEATSINK
0016 CLIP
0015 CLIP
0020 HEATSINK
not used
0005 viw-screening-power-supply
0010
GROUND-CONNECTOR
1150 Mains
1154 not used
1151 T1A25L
1152 DSP
1153 T100mA 19372
8/17V
12,2V
15,5V
14,9V
4,3V
5,4V
2,4V
4,4V
3,8V
2,5V
18,5V
7,5V / 18,4V
0V / 24,7V
6,6V/6V
64V
32,1V
8,17VM
GNDM1
GNDDC
GNDM2
33V
14VDC
14VM1
8_17VM
28NEG
GNDD
CSW
12VA
SENSE
5V
GNDA
HLEM 1115
to Motherboard PS, 1942

Motherboard (MOBO)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7108
7705
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7781
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7851
7871
7091

Component Mapping Motherboard

2000	E5
2001	C6
2002	C6
2003	C6
2004	C6
2005	C6
2006	C6
2007	C6
2008	C6
2009	C5
2010	C5
2011	C5
2012	C6
2013	C6
2014	C6
2016	C6
2017	D5
2020	C6
2022	C5
2023	C5
2025	C4
2026	B6
2028	C6
2029	C5
2031	C5
2032	B5
2033	B4
2034	B4
2036	C4
2037	C4
2038	C4
2040	C4
2041	C4
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2049	C4
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2086	D7
2087	D7
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2091	D8
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2093	E5
2094	E5
2095	D5
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2123	B8
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2661	C7
2662	D7
2663	C7
2666	C7
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2682	C8
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2702	D9
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3016	D6
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3359	B1
3365	B5
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3373	A4
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3378	A4
3379	A3
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3387	A3
3388	B4
3390	A4
3391	B4
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3393	B4
3394	B4
3397	A4
3398	B5
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3405	B3
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3407	D3
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3873	E1
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3881	E5
3883	D6
3884	E6
4001	C6
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4101	A7
4102	A7
4103	B7
4104	A7
4105	B7
4106	B7
4107	B7
4108	B7
4110	B7
4111	A7
4112	D6
4120	A7
4121	A8
4451	A1
4452	A1
4454	A1
4455	A1
4456	A1
4481	F2
4482	F1
4485	A1
4486	A4
4487	A4
4488	A1
4489	C1
4490	A4
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4493	A2
4494	B1
4496	C2
4498	E3
4499	B1
4501	A9
4502	C8
4503	C8
4651	A5
4652	A6
4701	C9
4702	D9
4703	D9
4704	C9
4705	D9
4706	C9
4711	E8
4712	E9
4713	B9
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4724	B9
4759	F9
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4852	A9
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6515	A3
6516	A3
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6702	D9
7001	C6
7002	E4
7003	C6
7004	D6
7005	B5
7006	C5
7007	C4
7008	B4
7009	B4
7010	B4
7011	B4
7014	D6
7015	E6
7016	E7
7071	E7
7073	E8
7074	E8
7075	D7
7091	F7
7092	F7
7101	B6
7102	B6
7103	A7
7104	A7
7105	B7
7106	B7
7107	A8
7108	A7
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7324	F1
7327	D1
7328	D1
7329	D1
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7442	A4
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7504	A9
7505	A9
7508	A9
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7511	E9
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7608	A6
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7701	D9
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9051	E8
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9525	E9
9701	D9

Component Mapping Motherboard

0001	F1
0007	E4
0008	D7
0020	D3
0021	D6
0022	D9
0031	E8
0050	A4
1001	C5
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1324	E10
1325	E10
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1703	D1
1704	C1
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1760	F1
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1945	D9
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1961	B2
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2015	C5
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2035	C7
2039	C6
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2053	C5
2054	D5
2055	D4
2056	E5
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2326	F10
2328	E10
2400	E8
2406	D8
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2485	A7
2486	A7
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2609	A5
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2644	A6
2646	A6
2651	D4
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2671	C2
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2685	D4
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2703	C1
2706	D1
2715	C2
2719	C2
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2726	C2
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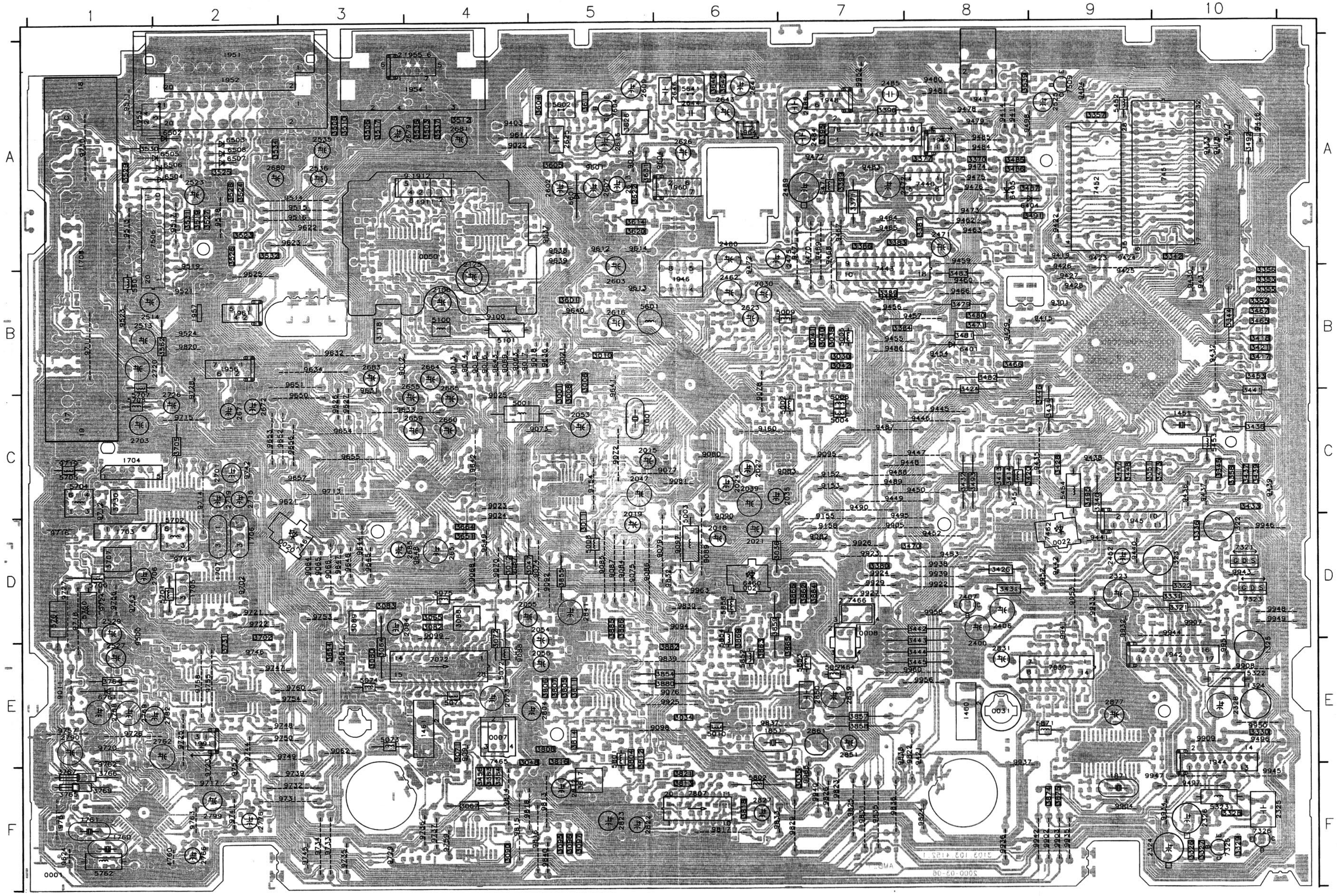
3854	E6
3855	D5
3857	E7
3858	E7
3859	D6
3862	D7
3863	E6
3864	D7
3865	E7
3866	D7
3869	D6
3874	F9
3875	F9
3880	E6
3882	E6
3885	D5
3886	D5
4760	F2
5001	C4
5002	C7
5003	C6
5004	C7
5005	B7
5006	C7
5008	D5
5009	B7
5010	E6
5071	E4
5072	E4
5073	E3
5074	E3
5075	D4
5100	B4
5101	B4
5322	E10
5323	F10
5451	C8
5452	A9
5453	C10
5454	C9
5471	A7
5501	B1
5601	B5
5602	A5
5641	A6
5701	D2
5702	D2
5704	C1
5705	C1
5706	D1
5707	C1
5708	C1
5760	D1
5761	D1
5762	F1
5801	E5
5802	F6
5851	E7
5852	E6
5853	E7
5854	D6
5856	D6
5871	E9
6401	B8
6404	A9
6405	A8
6460	D6
6502	A2
6503	A2
6504	A2
6505	A2
6506	A2
6507	A2
6508	A2
6601	A5
6761	E1
7072	E4
7321	D10
7323	D10
7325	F10
7326	F10
7407	D8
7440	A8
7443	B7
7446	A7
7451	A10
7452	A9
7461	D3
7462	D9
7464	E7
7465	E4
7466	D7
7506	A1
7509	A9
7604	A5
7807	F6
7830	E9
9011	E1
9012	B3
9013	B4
9014	B4
9015	B4
9016	B4
9017	B4
9018	B5
9019	A5
9021	B5
9022	A4
9023	C4
9024	C4
9025	C4
9061	E3
9062	E3
9063	B4
9064	D3
9065	D3
9066	D3
9067	D4
9068	D4
9069	B4
9070	D4
9072	C5
9073	C5
9074	D5
9075	D5
9076	E6
9077	C6
9078	C6
9079	D6
9080	C6
9081	C6
9082	D7
9083	C7
9084	D5
9085	D5
9086	D5
9087	D5
9088	E4
9089	D6
9090	D6
9091	E4
9092	D5
9094	D6
9095	C7
9097	D6
9098	E6
9099	D4
9100	B4
9152	C7
9153	C7
9154	C5
9155	D7
9158	D7
9160	C6
9301	B9
9403	A4
9404	A9
9411	A8
9414	A8
9415	B9
9416	A10
9417	A10
9418	A10
9419	A9
9421	E8
9422	A9
9423	A9
9424	A9
9425	B9
9426	B9
9427	B9
9428	B9
9429	B8
9430	B10
9431	B10
9432	B10
9433	A10
9435	C9
9436	C10
9437	C10
9438	C9
9439	C10
9440	D9
9441	D9
9442	D9
9445	C8
9446	C8
9447	C8
9448	C8
9449	C7
9450	C8
9452	D8
9453	D8
9454	B8
9455	B7
9456	B7
9457	B8
9458	B7
9459	A8
9460	B8
9462	A8
9463	A8
9464	A7
9465	A7
9466	B8
9467	A7
9468	A7
9469	A7
9470	A7
9471	A7
9472	A6
9473	A8
9474	A8
9475	A8
9476	A8
9477	A7
9478	A8
9479	A8
9480	A8
9481	A8
9483	A7
9484	A8
9485	A8
9486	B7
9487	C7
9488	C7
9489	C7
9490	C7
9495	D7
9496	E10
9497	F10
9498	A8
9500	D1
9511	A1
9513	A1
9514	A3
9515	A3
9516	A3
9517	A2
9518	A2
9519	A2
9521	B2
9523	B1
9524	B2
9601	A5
9604	A6
9611	A4
9612	A5
9613	B5
9614	A5
9621	C3
9622	A3
9623	A3
9624	F1
9625	B2
9626	C3
9627	C3
9631	B3
9632	B3
9633	C4
9634	B3
9636	B5
9637	A5
9638	A5
9639	A5
9640	B5
9641	B5
9642	C4
9643	B4
9644	D3
9645	D3
9646	D3
9647	D3
9648	D4
9649	D4
9650	C3
9651	B3
9652	C3
9653	C2
9654	C3
9655	C3
9656	C3
9657	C3
9702	D2
9711	B1
9712	C1
9713	C3
9714	C2
9715	C2
9716	D1
9717	F2
9718	D1
9719	C1
9720	E1
9721	D2
9722	D2
9723	F2
9724	D1
9725	E2
9726	E1
9727	D1
9728	B2
9729	F3
9730	A1
9731	F3
9732	F3
9733	F3
9734	F3
9735	F3
9736	F4
9737	F4
9739	F3
9741	F2
9742	C2
9743	D1
9744	E2
9745	F3
9746	E2
9747	E2
9748	E3
9749	E3
9750	E3
9752	E2
9753	D3
9754	E3
9755	E2
9756	D1
9757	E1
9758	E2
9759	F4
9760	E3
9761	F1
9762	E1
9763	F2
9764	D2
9813	F5
9814	F4
9815	F4
9816	F5
9817	F6
9818	F4
9820	B2
9822	E8
9823	F7
9824	F8
9825	F7
9826	F7
9829	F7
9830	D6
9831	F7
9832	D6
9833	F6
9835	F7
9836	F7
9837	E6
9838	E7
9839	E6
9840	F5
9902	F9
9903	F9
9904	F9
9905	D7
9907	D10
9908	E10
9909	E10
9922	D8
9923	D7
9924	D7
9925	E6
9926	D7
9927	D7
9929	D7
9932	D9
9933	D9
9934	F10
9935	F9
9936	F8
9937	E8
9938	D8
9939	D8
9940	F7
9941	D9
9942	F9
9943	D10
9944	D10
9945	F10
9946	D10
9947	F10
9948	D10
9949	D10
9950	E10
9951	E10
9952	D9
9953	D9
9956	E8
9958	D8
9960	E8
9962	A7
9963	D6
9965	F7

Motherboard (MOBO)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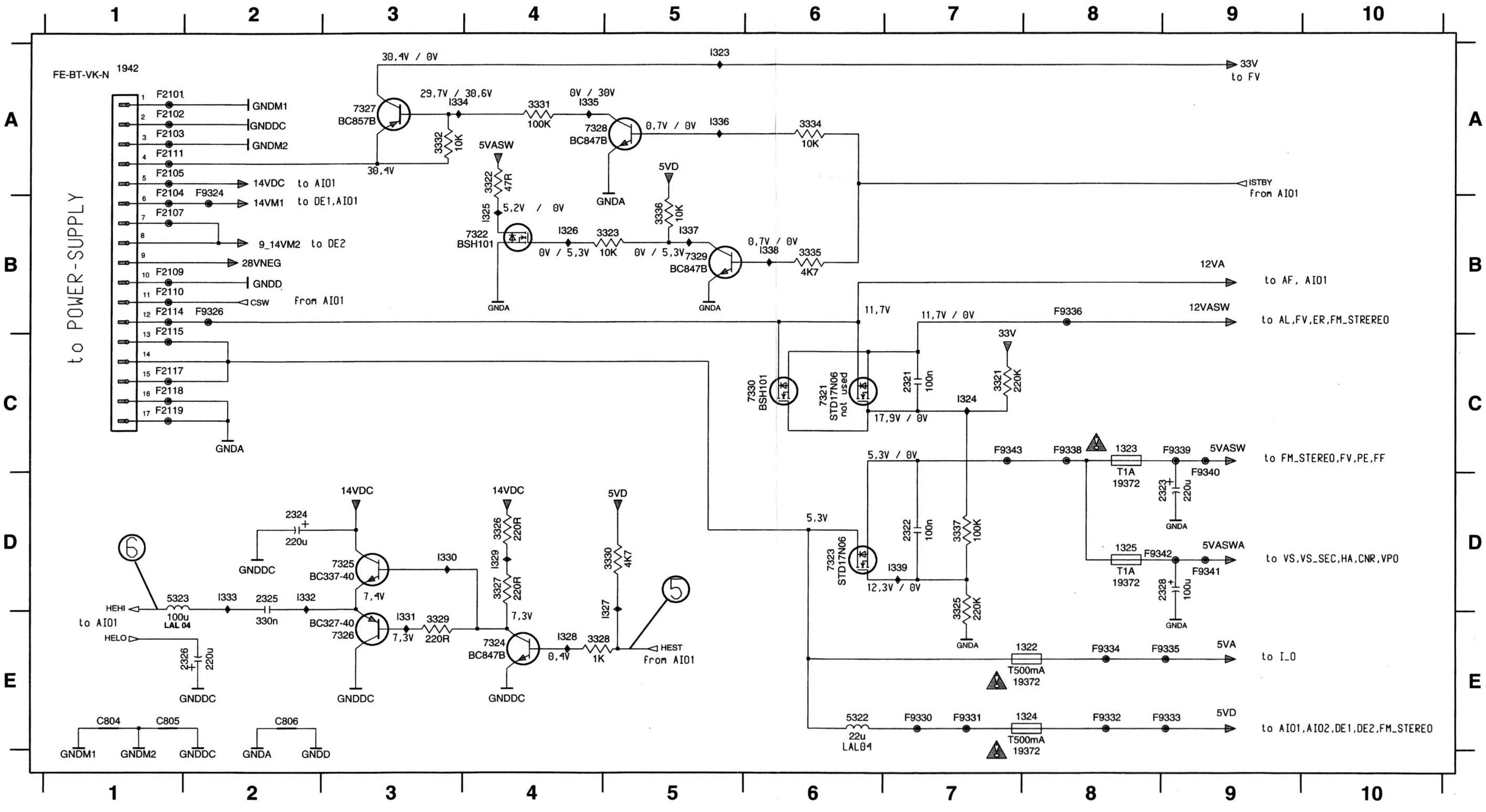
A
B
C
D
E
F

Supply Part (PS)

Interconnections Manual Page

PS 3-18	FM-STEREO-TDA 3-22	AF 3-24	AL 3-26	HA 3-30	CNR 3-34	AIO1 3-36	DE 3-39	VPS; FOME; PE 3-42
FV 3-20	FM-STEREO-MSP 3-23	ER 3-25	VS 3-29	VS-SEC 3-33	IO 3-35	AIO2 3-40	VPO 3-41	

1323 C8
1324 E8
1325 D8
2321 C7
2322 D7
2323 D9
2325 D2
2326 E2
2328 D9
3322 A4
3323 B5
3325 D7
3327 D4
3328 E4
3329 E3
3331 A4
3332 A3
3334 A6
3336 B5
3337 D7
5322 E6
7321 C6
7322 B4
7323 D6
7325 D3
7326 E3
7327 A3
7329 B5
7330 C6
C804 E1
C806 E2
F2101 A1
F2102 A1
F2104 B1
F2105 A1
F2107 B1
F2110 B1
F2111 A1
F2114 B1
F2117 C1
F2118 C1
F2119 C1
F9326 B2
F9330 E7
F9331 E7
F9333 E9
F9334 E8
F9335 E9
F9338 C8
F9339 C9
F9340 D9
F9342 D8
F9343 C7
I323 A5
I325 B4
I326 B4
I327 D5
I329 D4
I330 D3
I331 E3
I333 D2
I334 A3
I335 A4
I337 B5
I338 B6
I339 D7


1
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3
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5
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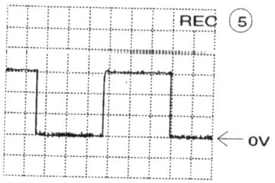
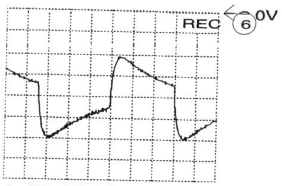
7
8
9
10
A
B
C
D
E
FE-BT-VK-N
1942
to POWER-SUPPLY
F2101
F2102
F2103
F2111
F2105
F2104
F9324
F2107
F2109
F2110
F2114
F9326
F2115
F2117
F2118
F2119
GNDM1
GNDDC
GNDM2
14VDC to AIO1
14VM1 to DE1,AIO1
9_14VM2 to DE2
28VNEG
GNDD
CSW from AIO1
GNDA
30,4V / 0V
30,4V
7327
BC857B
29,7V / 30,6V
I334
3332 10K
3331 100K
0V / 30V
I335
7328
BC847B
0,7V / 0V
I336
3334 10K
GNDA
5VASW
3322 47R
I325
5,2V / 0V
7322
BSH101
I326
3323 10K
0V / 5,3V
5VD
3336 10K
I337
0,7V / 0V
I338
3335 4K7
7329
BC847B
I323
33V to FV
ISTBY from AIO1
12VA
to AF, AIO1
11,7V
11,7V / 0V
F9336
12VASW
to AL,FV,ER,FM_STRERE0
33V
3321 220K
7330 BSH101
7321 STD17N06 not used
2321 100n
I324
17,9V / 0V
5,3V / 0V
F9343
F9338
1323 T1A 19372
F9339
5VASW
F9340
2323 220u
to FM_STEREO,FV,PE,FF
5,3V
7323 STD17N06
2322 100n
3337 100K
I339
12,3V / 0V
3325 220K
1325 T1A 19372
F9342
5VASWA
F9341
2328 100u
to VS,VS_SEC,HA,CNR,VPO
1322 T500mA 19372
F9334
F9335
5VA
to I_O
5322 22u LAL04
F9330
F9331
1324 T500mA 19372
F9332
F9333
5VD
to AIO1,AIO2,DE1,DE2,FM_STEREO
14VDC
2324 220u
GNDDC
7325 BC337-40
7,4V
I330
7326 BC327-40
I331
3329 220R
7,3V
3326 220R
I329
3327 220R
7,3V
7324 BC847B
I328
3328 1K
0,4V
3330 4K7
I327
HEST from AIO1
⑥
⑤
HEHI
to AIO1
HELO
5323 100u LAL 04
I333
2325 330n
I332
2326 220u
C804
C805
C806
GNDM1
GNDM2
GNDDC
GNDA
GNDD

Oscillograms Supply Part



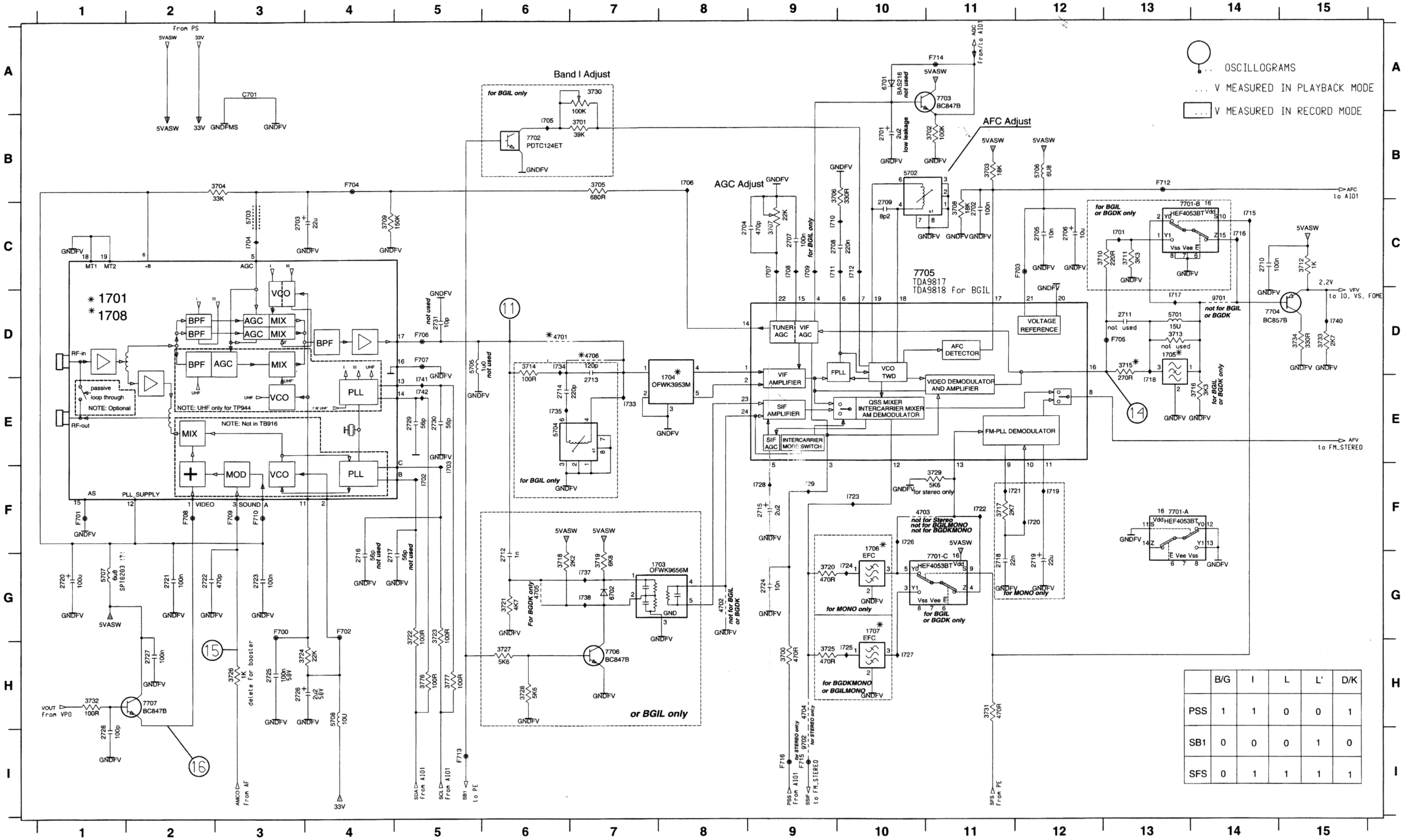
A: DC, 500mV/Div, 5us/Div
Connector 1944 Pin 13



A: DC, 5 V/Div, 5us/Div
Connector 1944 Pin 5

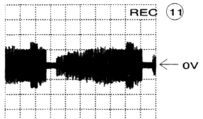
Frontend (FV)

1701	E1
1703	G7
1704	E8
1705	D13
1706	F10
1707	G10
2701	B10
2702	C11
2703	C3
2704	C8
2705	C12
2706	C12
2707	C9
2708	C9
2709	C10
2710	C14
2711	D13
2712	G6
2713	E7
2714	E6
2715	F9
2716	G4
2717	G4
2718	G11
2719	G12
2720	G1
2721	G2
2722	G2
2723	G3
2724	G9
2725	H3
2726	H3
2727	H2
2728	I1
2729	E5
2730	E5
3700	H9
3701	B7
3702	B11
3703	B11
3704	B3
3705	B7
3706	B9
3707	C9
3708	C11
3709	C4
3710	C12
3711	C13
3712	C15
3713	D13
3714	D6
3715	D13
3716	E14
3717	F11
3718	G6
3719	G7
3720	G9
3721	G6
3722	G5
3723	G5
3724	H3
3725	H9
3726	H3
3727	H6
3728	H6
3729	F11
3730	A7
3731	H11
3732	H1
3733	D15
3734	D15
3776	H5
3777	H5
4701	D6
4702	G8
4703	F10
4704	H9
4705	G6
5701	D13
5702	B10
5703	C3
5704	E6
5705	D5
5706	B12
5707	G1
5708	H4
6701	A10
6702	G7
7701-A	F13
7701-B	C13
7701-C	G11
7702	B6
7703	A11
7704	D14
7705	C10
7706	H7
7707	H2
9701	D14
9702	I9
C701	A3
F700	G3
F701	F1
F702	G4
F703	C12
F704	B4
F705	D13
F706	D5
F707	D5
F708	F2
F709	F3
F710	F3
F712	B13
F713	I5
F714	A11
F715	I9
F716	I9
I701	C13
I702	F5
I703	F5
I704	C3
I705	B6
I706	B8
I707	C9
I708	C9
I709	C9
I710	C9
I711	C9
I712	C10
I715	C14
I716	C14
I717	D13
I718	E13
I719	F12
I720	F12
I721	F11
I722	F11
I723	F10
I724	G10
I725	H10
I726	F10
I727	H10
I728	F9
I729	F9
I733	E7
I734	D6
I735	E6
I737	G7
I738	G7
I740	D15
I741	E5
I742	E5

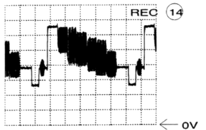


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I
from PS
5VASW
33V
GNDFMS
GNDFV
C701
Band I Adjust
for BGIL only
7702 PDTC124ET
3730 100K
3701 39K
3704 33K
3705 680R
F704
AGC Adjust
AFC Adjust
7703 BC847B
BAS216 not used
2701 2u2 low leakage
3702 100K
AGC from/to AI01
AFC to AI01
1701 1708
RF-in
RF-out
passive loop through NOTE: Optional
NOTE: UHF only for TP944
NOTE: Not in TB916
BPF
AGC
MIX
VCO
PLL
MOD
AS
PLL_SUPPLY
VIDEO
SOUND
11
1704 OFWK3953M
1703 OFWK9656M
7706 BC847B
or BGIL only
For BGDK only
7705 TDA9817 TDA9818 for BGIL
TUNER AGC
VIF AGC
VIF AMPLIFIER
SIF AMPLIFIER
SIF AGC
INTERCARRIER MODE SWITCH
FPLL
VCO TWD
AFC DETECTOR
VIDEO DEMODULATOR AND AMPLIFIER
QSS MIXER INTERCARRIER MIXER AM DEMODULATOR
FM-PLL DEMODULATOR
VOLTAGE REFERENCE
7701-B HEF4053BT
7701-A HEF4053BT
7701-C HEF4053BT
for BGIL or BGDK only
1706 EFC
1707 EFC
for MONO only
for BGDKMONO or BGILMONO
not for Stereo not for BGILMONO not for BGDKMONO
for stereo only
7704 BC857B
VFV to IO, VS, FOME
AFV to FM_STEREO
14
15
delete for booster
16
7707 BC847B
VOUT from VPO
AMCO from AF
SDA from AI01
SCL from AI01
SB1 to PE
PSS from AI01
SSF to FM_STEREO
SFS from PE
OSCILLOGRAMS
... V MEASURED IN PLAYBACK MODE
V MEASURED IN RECORD MODE

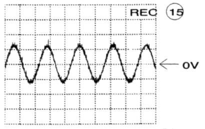
	B/G	I	L	L'	D/K
PSS	1	1	0	0	1
SB1	0	0	0	1	0
SFS	0	1	1	1	1



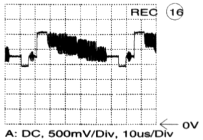
A: DC, 200mV/Div, 10us/Div
Tuner Pin 17



A: DC, 500mV/Div, 10us/Div
IC 7705 Pin 8



A: DC, 500mV/Div, 500us/Div
Tumod Pin 3



A: DC, 500mV/Div, 10us/Div
Tumod Pin 1

Variant List Frontend

	PAL BG	PAL BG	PAL I Fullband	PAL,SEC BG/DK	PAL, SEC BG/I/DK, L/L'	
	/02	/13, /16	/07	/58	/39	
Pos.	FM QSS	FM, NICAM QSS	FM, NICAM QSS	NICAM QSS	FM, AM, NICAM QSS	**FUNKTION**
1708	TP916L MKII	TP916L MKII	-	-	TP926L MKII	TUMOD PHILIPS
1701	TCBZ4-001A/B	TCBZ4-001A/B	TCBZ4-001A/B	TCBZ4-001A/B	TCBZ4-003A/B	TUMOD ALPS MK3
1703	K9656M	K9656M	K9656M	K9656M	K9656M	QSS Sound OFW
1704	G3956M	G3956M	K3953M	G3956M	K3953M	QSS Video OFW
1705	TPS 5,5	TPS 5,5	TPS 6,0	TPS 5,5	TPS 5,5	Video-TRAP
1706	-	-	-	-	-	1. Sound-Filter
1707	-	-	-	-	-	2. Sound-Filter
2707	-	-	-	-	100n	VIF AGC TDA 9818T only
2712	1n	1n	1n	1n	1n	QSS Sound OFW Kopplung
2713	-	-	-	-	120p	40,4 Falle
2714	-	-	-	-	220p	40,4 Falle
2718	-	-	-	-	-	Deemphasis MONO
2719	-	-	-	-	-	FM PLL Demodulator
2722	470p	470p	470p	470p	-	Siebung Audio Modul. IN
3701	-	-	-	-	39K	SEC Band 1 Adj.
3710	-	-	-	220E	220E	Video Trap Bypass
3711	-	-	-	3k3	3k3	Video-Amplitude Multistdt.
3714	-	-	-	-	100E	40,4 Falle
3715	330E	330E	330E	330E	270E	Video Trap Vorwiderstand
3716	-	-	-	2k2	2k2	Video Trap Abschluß
3717	-	-	-	-	-	Deemphasis MONO
3718	-	-	-	-	2k2	Sound OFW Umsch.
3719	-	-	-	-	6k8	Sound OFW Umsch.
3720	-	-	-	-	-	EFC Vorwiderstand
3721	-	-	-	-	4k7	Sound OFW Umsch.
3725	-	-	-	-	-	2. EFC Vorwiderstand
3726	1k	1k	1k	1k	-	Audio IN Modulator
3727	-	-	-	-	5k6	Sound OFW Umsch.
3728	-	-	-	-	5k6	Sound OFW Umsch.
3729	5k6	5k6	5k6	5k6	5k6	Mute FM Demodulator
3730	-	-	-	-	100K	SEC Band 1 Adj.
4701	0E	0E	0E	0E	-	40,4 Falle Bypass
4702	-	-	-	-	-	Intercarier switch
4703	-	-	-	-	-	4053 Bypass
4704	0E	0E	0E	0E	0E	SIF zu MSP/TDA
4705	0E	0E	0E	0E	-	QSS OFW BG/DK/I Select.
4706	0E	0E	0E	0E	-	Meßpunktverbindung
5701	15uH	15uH	15uH	15uH	15uH	Video Trap Spule
5704	-	-	-	-	41645	40,4 Falle
6702	-	-	-	-	BA792	Sound OFW Umsch.
7701	-	-	-	HEF4053	HEF4053	EFC / TRAP switch
7702	-	-	-	-	PDTC124EU	AFC L'
7705	TDA 9817 T	TDA 9817 T	TDA 9817 T	TDA 9817 T	TDA 9818 T	AV Demodulator
7706	-	-	-	-	BC847BW	Sound OFW Umsch.
9701	0E	0E	0E	-	-	4053 Bypass
9702	0E	0E	0E	0E	0E	SIF zu MSP/TDA

Stereo Decoder (FM-STEREO-TDA)

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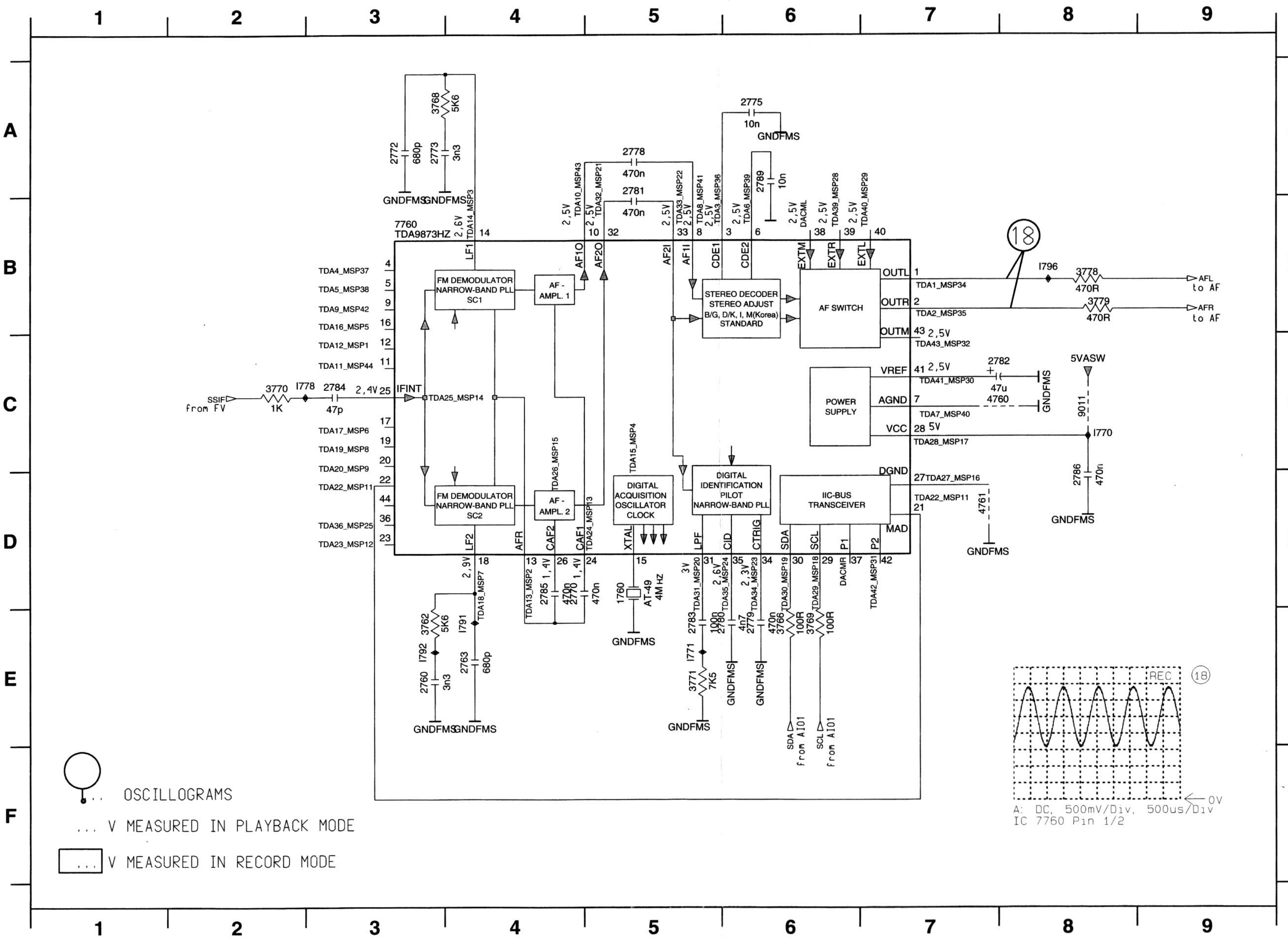
FV 3-20	FM-STEREO-MSP 3-23	ER 3-25	VS 3-29	VS-SEC 3-33	IO 3-35	AIO2 3-40	VPO 3-41	


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
7760
TDA9873HZ
FM DEMODULATOR NARROW-BAND PLL SC1
FM DEMODULATOR NARROW-BAND PLL SC2
AF - AMPL. 1
AF - AMPL. 2
STEREO DECODER STEREO ADJUST B/G, D/K, I, M(Korea) STANDARD
AF SWITCH
POWER SUPPLY
DIGITAL ACQUISITION OSCILLATOR CLOCK
DIGITAL IDENTIFICATION PILOT NARROW-BAND PLL
IIC-BUS TRANSCEIVER
LF1
AF1O
AF2O
AF2I
AF1I
CDE1
CDE2
EXTM
EXTR
EXTL
OUTL
OUTR
OUTM
VREF
AGND
VCC
DGND
MAD
IFINT
LF2
AFR
CAF2
CAF1
XTAL
LPF
CID
CTRIG
SDA
SCL
P1
P2
SSIF from FV
3770 1K
I778
2784 47p
2,4V 25
TDA25_MSP14
TDA4_MSP37
TDA5_MSP38
TDA9_MSP42
TDA16_MSP5
TDA12_MSP1
TDA11_MSP44
TDA17_MSP6
TDA19_MSP8
TDA20_MSP9
TDA22_MSP11
TDA36_MSP25
TDA23_MSP12
3768 5K6
2772 680p
2773 3n3
GNDFMS
2,6V TDA14_MSP3
2778 470n
2781 470n
2775 10n
2789 10n
TDA10_MSP43
TDA32_MSP21
TDA33_MSP22
TDA8_MSP41
TDA3_MSP36
TDA6_MSP39
DACML
TDA39_MSP28
TDA40_MSP29
18
I796
3778 470R
3779 470R
AFL to AF
AFR to AF
TDA1_MSP34
TDA2_MSP35
TDA43_MSP32
2,5V
2782 47u
TDA41_MSP30
4760
TDA7_MSP40
5VASW
9011
I770
TDA28_MSP17
5V
2786 470n
TDA27_MSP16
TDA22_MSP11
4761
TDA15_MSP4
TDA26_MSP15
TDA13_MSP2
TDA24_MSP13
2785 1,4V 470n
2770 1,4V 470n
1760 AT-49 4MHz
TDA18_MSP7
2,9V
3762 5K6
I791
I792
2760 3n3
2763 680p
TDA31_MSP20
TDA35_MSP24
TDA34_MSP23
TDA30_MSP19
TDA29_MSP18
DACMR
TDA42_MSP31
2783 100n
2780
4n7 2779
470n 3766 100R
3769 100R
I771
3771 7K5
SDA from AI01
SCL from AI01
REC
(18)
0V
A: DC, 500mV/Div, 500us/Div
IC 7760 Pin 1/2

OSCILLOGRAMS

... V MEASURED IN PLAYBACK MODE

... V MEASURED IN RECORD MODE

1760	D5
2760	E3
2763	E4
2770	D4
2772	A3
2773	A3
2775	A6
2778	A5
2779	E6
2780	E6
2781	A5
2782	C7
2783	E5
2784	C3
2785	D4
2786	D8
2789	A6
3762	E3
3766	E6
3768	A3
3769	E6
3770	C2
3771	E5
3778	B8
3779	B8
4760	C7
4761	D7
7760	B3
9011	C8
I770	C8
I771	E5
I778	C2
I791	E4
I792	E3
I796	B8

Stereo Decoder (FM-STEREO-MSP)

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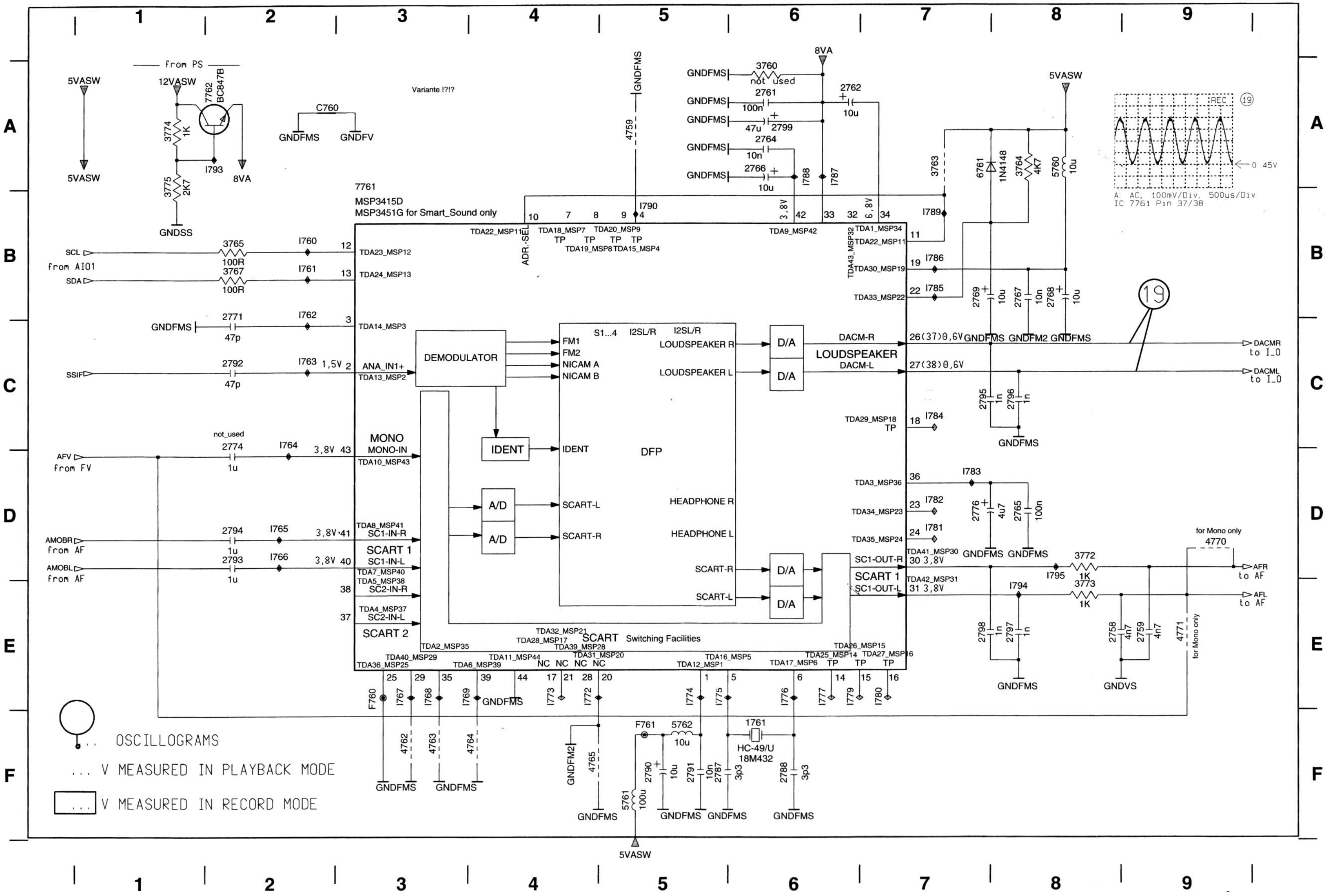
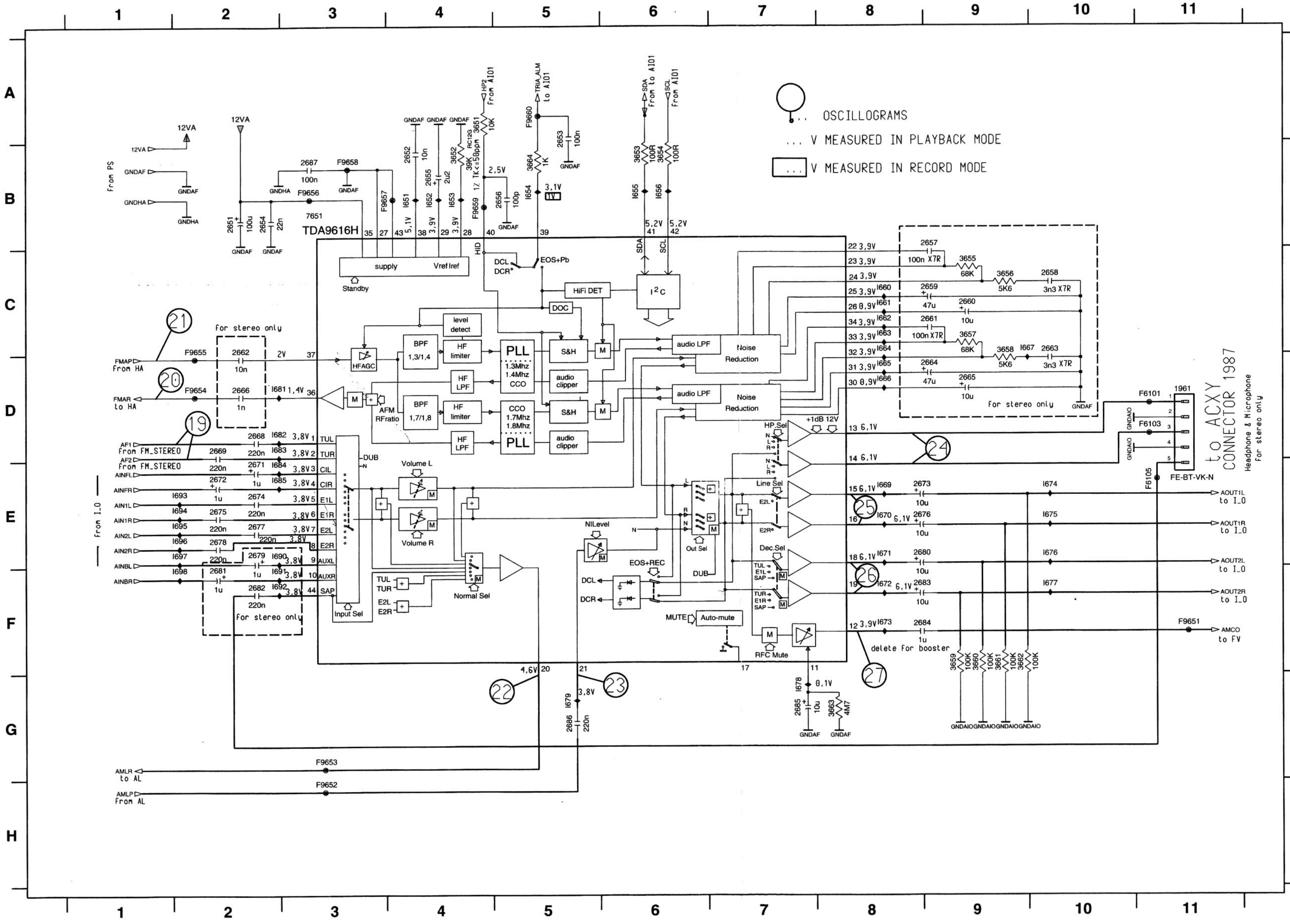


1 2 3 4 5 6 7 8 9
A B C D E F
from PS
5VASW
12VASW
7762 BC847B
3774 1K
3775 2K7
I793
8VA
GNDSS
C760
GNDFMS GNDFV
Variante !?!?
4759
GNDFMS
3760 not used
2761 100n
2799 47u
2764 10n
2766 10u
2762 10u
8VA
I788
I787
3763
6761 1N4148
3764 4K7
5760 10u
5VASW
REC ⑲
0 45V
A: AC, 100mV/Div, 500us/Div
IC 7761 Pin 37/38
7761
MSP3415D
MSP3451G for Smart_Sound only
I790
3,8V
6,8V
I789
SCL
from AIO1
SDA
3765 100R
3767 100R
I760
I761
TDA23_MSP12
TDA24_MSP13
ADR-SEL
TDA22_MSP11
TDA18_MSP7 TDA20_MSP9
TP TP TP TP
TDA19_MSP8 TDA15_MSP4
TDA9_MSP42
TDA1_MSP34
TDA22_MSP11
TDA43_MSP32
TDA30_MSP19
TDA33_MSP22
I786
I785
2769 10u
2767 10n
2768 10u
⑲
GNDFMS
2771 47p
I762
TDA14_MSP3
SSIF
2792 47p
I763 1,5V
ANA_IN1+
TDA13_MSP2
DEMODULATOR
FM1 FM2 NICAM A NICAM B
S1...4 I2SL/R I2SL/R
LOUDSPEAKER R
LOUDSPEAKER L
D/A
DACM-R
LOUDSPEAKER
DACM-L
26(37)0,6V
27(38)0,6V
GNDFMS GNDFM2 GNDFMS
DACMR to I_0
DACML to I_0
2795 1n
2796 1n
GNDFMS
TDA29_MSP18 TP
I784
IDENT
DFP
not_used
2774 1u
I764
3,8V 43
MONO
MONO-IN
TDA10_MSP43
AFV from FV
TDA3_MSP36
I783
TDA34_MSP23
I782
TDA35_MSP24
I781
2776 4u7
2765 100n
A/D
SCART-L
SCART-R
HEADPHONE R
HEADPHONE L
SCART-R
SCART-L
AMOBR from AF
AMOBL from AF
2794 1u
2793 1u
I765
I766
3,8V 41
3,8V 40
TDA8_MSP41
SC1-IN-R
SCART 1
SC1-IN-L
TDA7_MSP40
TDA5_MSP38
SC2-IN-R
TDA4_MSP37
SC2-IN-L
SCART 2
TDA41_MSP30 30 3,8V
SC1-OUT-R
SCART 1
SC1-OUT-L
TDA42_MSP31 31 3,8V
I794
I795
3772 1K
3773 1K
for Mono only
4770
AFR to AF
AFL to AF
2798 1n
2797 1n
2758 4n7
2759 4n7
4771
GNDFMS
GNDVS
TDA2_MSP35
TDA32_MSP21
TDA28_MSP17
SCART Switching Facilities
TDA39_MSP28
TDA31_MSP20
TDA40_MSP29
TDA36_MSP25
TDA6_MSP39
TDA11_MSP44
NC NC NC NC
TDA16_MSP5
TDA12_MSP1
TDA17_MSP6
TDA25_MSP14
TDA26_MSP15
TDA27_MSP16
TP TP TP
F760
I767
I768
I769
GNDFMS
I773
I772
I774
I775
I776
I777
I779
I780
4762
4763
4764
GNDFMS
GNDFM2
4765
F761
5762 10u
5761 100u
2790 10u
2791 10n
2787 3p3
1761 HC-49/U 18M432
2788 3p3
5VASW
OSCILLOGRAMS
... V MEASURED IN PLAYBACK MODE
... V MEASURED IN RECORD MODE

1761	F6
2758	E8
2759	E9
2761	A6
2762	A6
2764	A6
2765	D8
2766	A6
2767	B8
2768	B8
2769	B7
2771	B2
2774	C2
2776	D7
2787	F5
2788	F6
2790	F5
2791	F5
2792	C2
2793	D2
2794	D2
2795	C7
2796	C8
2797	E8
2798	E7
2799	A6
3760	A6
3763	A7
3764	A8
3765	B2
3767	B2
3772	D8
3773	E8
3774	A1
3775	A1
4759	A5
4762	F3
4763	F3
4764	F4
4765	F4
4770	D9
4771	E9
5760	A8
5761	F5
5762	F5
6761	A7
7761	B3
7762	A2
C760	A2
F760	E3
F761	F5
I760	B2
I761	B2
I762	B2
I763	C2
I764	C2
I765	D2
I766	D2
I767	E3
I768	E3
I769	E3
I772	E4
I773	E4
I774	E5
I775	E5
I776	E6
I777	E6
I779	E6
I780	E7
I781	D7
I782	D7
I783	D7
I784	C7
I785	B7
I786	B7
I787	A6
I788	A6
I789	B7
I790	B5
I793	A2
I794	E8
I795	D8

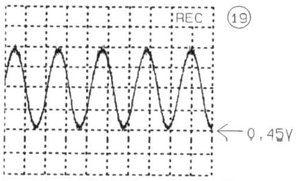
FM Audio (AF)



OSCILLOGRAMS
... V MEASURED IN PLAYBACK MODE
... V MEASURED IN RECORD MODE
7651
TDA9616H
12VA
From PS
GNDAF
GNDHA
HP2 From AIO1
TRIA_ALM to AIO1
SDA From to AIO1
SCL From AIO1
supply
Vref Iref
Standby
DCL
DCR
EOS+Pb
HiFi DET
I²C
DOC
level detect
HFAGC
BPF 1,3/1,4
BPF 1,7/1,8
HF limiter
HF LPF
PLL
CCO 1.3Mhz 1.4Mhz
CCO 1.7Mhz 1.8Mhz
S&H
audio clipper
audio LPF
Noise Reduction
AFM RFratio
for stereo only
FMAP From HA
FMAR to HA
AF1 From FM_STEREO
AF2 From FM_STEREO
AINFL
AINFR
AIN1L
AIN1R
AIN2L
AIN2R
AINBL
AINBR
from I_O
TUL
TUR
CIL
CIR
E1L
E1R
E2L
E2R
AUXL
AUXR
SAP
DUB
Input Sel
Volume L
Volume R
Normal Sel
NlLevel
EOS+REC
MUTE
Auto-mute
RFC Mute
Out Sel
Line Sel
HP Sel
Dec Sel
+1dB 12V
delete for booster
AOUT1L to I_O
AOUT1R to I_O
AOUT2L to I_O
AOUT2R to I_O
AMCO to FV
AMLR to AL
AMLP From AL
to ACXY CONNECTOR 1987
Headphone & Microphone for stereo only
FE-BT-VK-N
1961
F6101
F6103
F6105
F9651
F9652
F9653
F9654
F9655
F9656
F9657
F9658
F9659
F9660
GNDAIO
19
20
21
22
23
24
25
26
27
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H

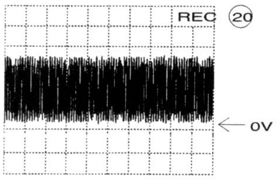
1961	D11
2651	B2
2652	B4
2653	A5
2654	B2
2655	B4
2656	B5
2657	B9
2658	C10
2659	C9
2660	C9
2661	C9
2662	C2
2663	C10
2664	D9
2665	D9
2666	D2
2668	D2
2669	D2
2671	E2
2672	E2
2673	E8
2674	E2
2675	E2
2676	E8
2677	E2
2678	E2
2679	E2
2680	E8
2681	F2
2682	F2
2683	F8
2684	F8
2685	G7
2686	G5
2687	B3
3651	A4
3652	B4
3653	B6
3654	B6
3655	C9
3656	C9
3657	C9
3658	C9
3659	F9
3660	F9
3661	F9
3662	F9
3663	G8
3664	B5
7651	B3
F6101	D11
F6103	D11
F6105	E11
F9651	F11
F9652	H3
F9653	G3
F9654	D2
F9655	C2
F9656	B3
F9657	B4
F9658	B3
F9659	B4
F9660	A5
I651	B4
I652	B4
I653	B4
I654	B5
I655	B6
I656	B6
I660	C8
I661	C8
I662	C8
I663	C8
I664	C8
I665	D8
I666	D8
I667	C9
I669	E8
I670	E8
I671	E8
I672	F8
I673	F8
I674	E10
I675	E10
I676	E10
I677	F10
I678	G7
I679	G5
I681	D2
I682	D2
I683	D2
I684	E2
I685	E2
I690	E2
I691	F2
I692	F2
I693	E2
I694	E2
I695	E2
I696	E2
I697	E2
I698	F2

Oscillograms FM Audio, Erase Oscillator



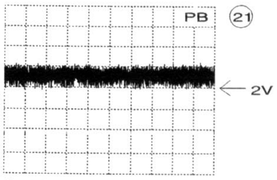
⑲

A: AC, 100mV/Div. 500us/Div
IC 7761 Pin 37/38



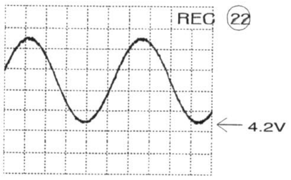
⑳

A: DC, 200mV/Div, 5ms/Div
FMAR



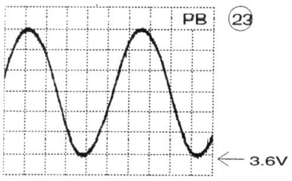
㉑

A: AC, 200mV/Div, 500us/Div
FMAP



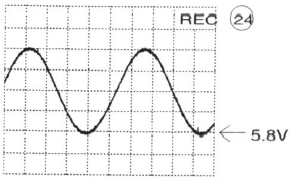
㉒

A: AC, 200mV/Div, 200us/Div
IC 7651 Pin 20



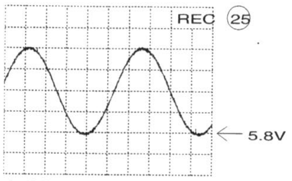
㉓

A: AC, 100mV/Div, 200us/Div
IC 7651 Pin 21



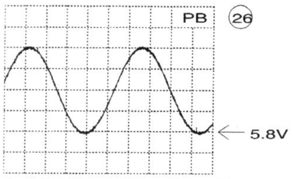
㉔

A: AC, 200mV/Div, 200us/Div
IC 7651 Pin 13/14



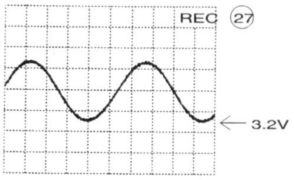
㉕

A: AC, 200mV/Div, 200us/Div
IC 7651 Pin 15/16



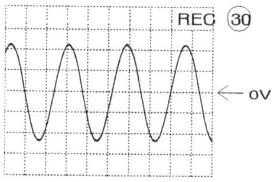
㉖

A: AC, 200mV/Div, 200us/Div
IC 7651 Pin 18/19



㉗

A: AC, 500mV/Div, 200us/Div
IC 7651 Pin 12



㉚

A: DC, 10 V/Div, 5us/Div
Connector 1964 Pin 1

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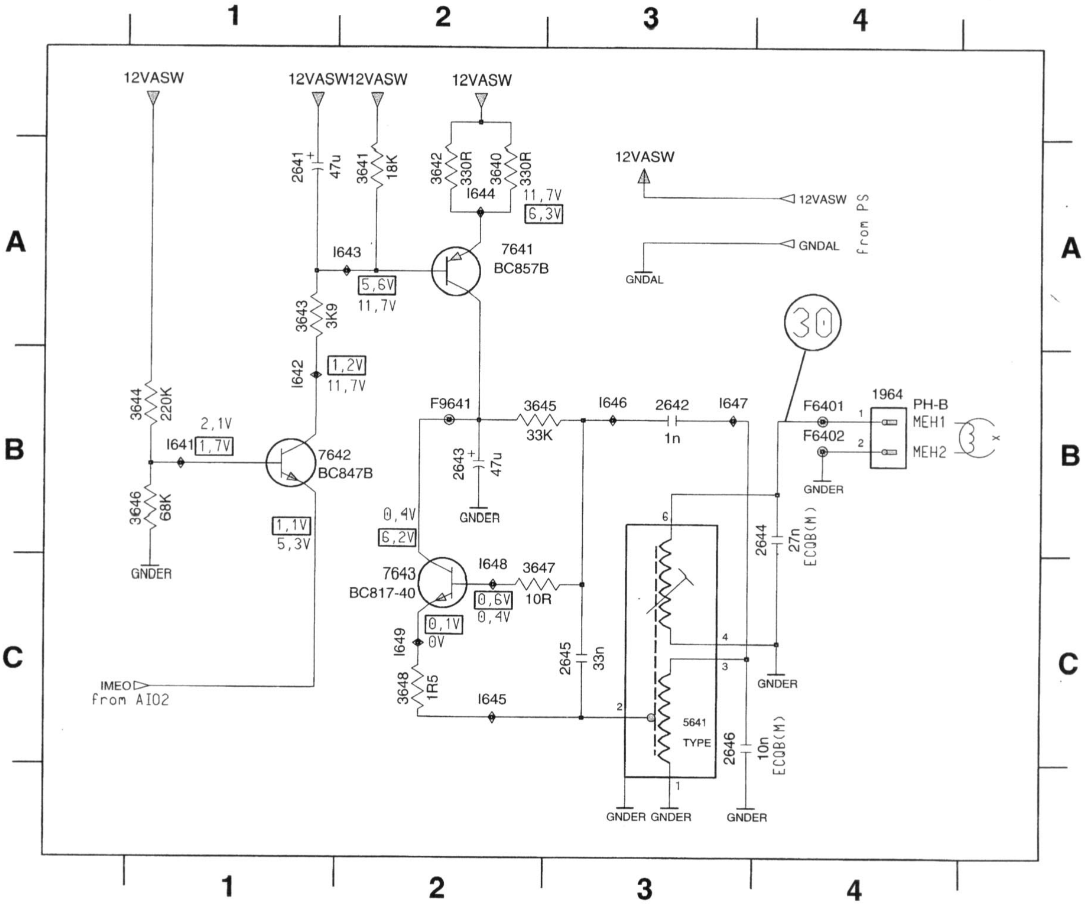
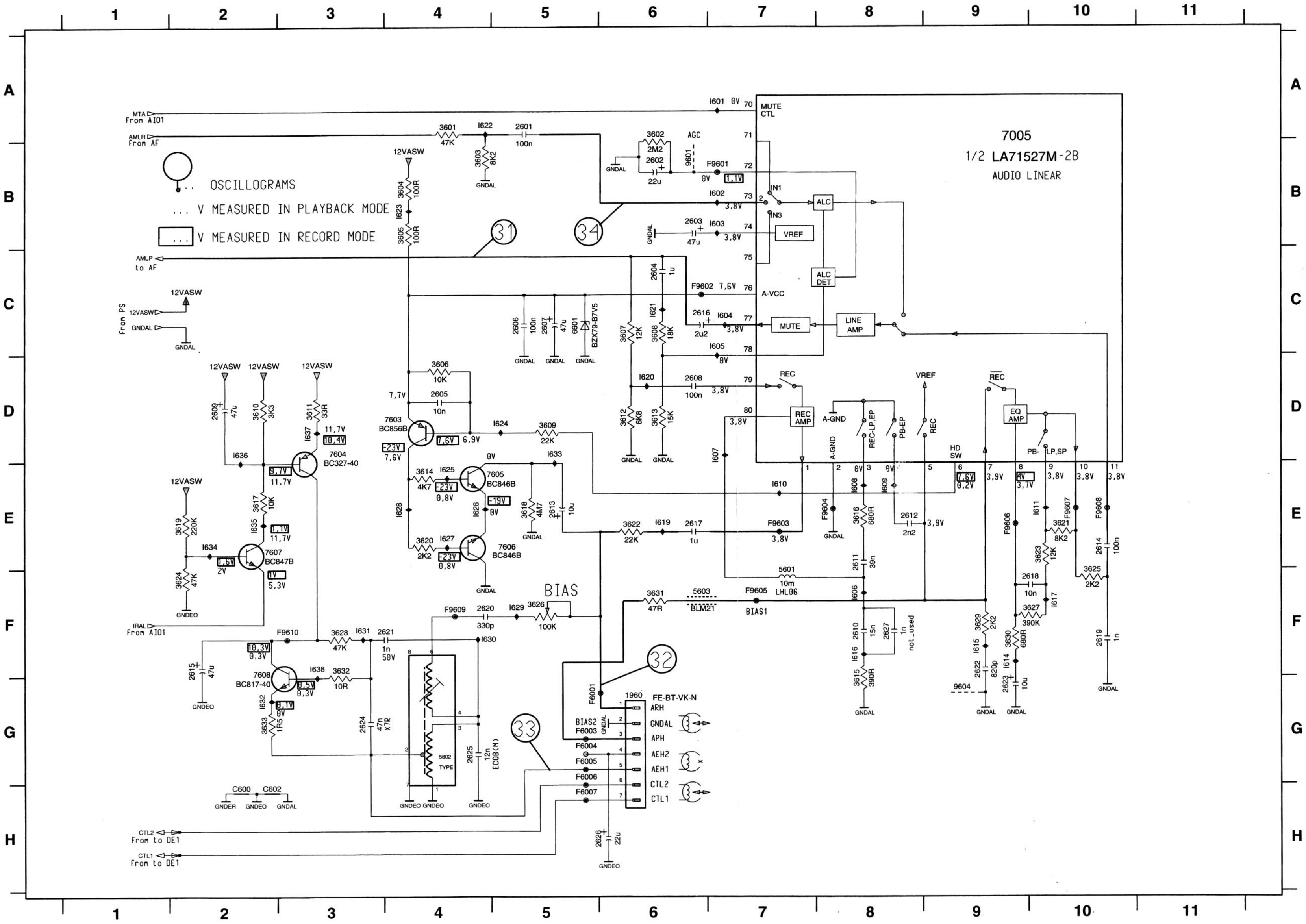
Main Erase Oscillator (ER)

1964	B4
2641	A1
2642	B3
2643	B2
2644	B4
2645	C3
2646	C3
3640	A2
3641	A2
3642	A2
3643	A1
3644	B1
3645	B2
3646	B1
3647	C2
3648	C2
5641	C3
7641	A2
7642	B1
7643	C2
F6401	B4
F6402	B4
F9641	B2
I641	B1
I642	B1
I643	A2
I644	A2
I645	C2
I646	B3
I647	B3
I648	C2
I649	C2


1
2
3
4
A
B
C
12VASW
12VASW
12VASW
12VASW
2641
47u
3641
18K
3642
330R
3640
330R
I644
11,7V
6,3V
12VASW
12VASW
from PS
GNDAL
GNDAL
I643
5,6V
11,7V
7641
BC857B
3643
3K9
I642
1,2V
11,7V
3644
220K
2,1V
I641
1,7V
7642
BC847B
3646
68K
GNDER
1,1V
5,3V
F9641
3645
33K
I646
2642
1n
I647
30
F6401
F6402
1964
PH-B
MEH1
MEH2
GNDER
2643
47u
GNDER
0,4V
6,2V
7643
BC817-40
I648
3647
10R
0,6V
0,4V
0,1V
0V
I649
3648
1R5
I645
2645
33n
2644
27n
ECOB(M)
5641
TYPE
2646
10n
ECOB(M)
GNDER
GNDER
GNDER
GNDER
IMEO
from AI02

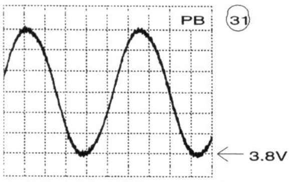
Audio Linear (AL)



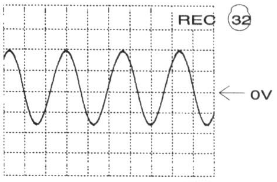
OSCILLOGRAMS
... V MEASURED IN PLAYBACK MODE
... V MEASURED IN RECORD MODE
7005
1/2 LA71527M-2B
AUDIO LINEAR
MTA From AI01
AMLR From AF
AMLP to AF
12VASW
GNDAL
From PS
IRAL From AI01
CTL2 From to DE1
CTL1 From to DE1
MUTE CTL
A-VCC
ALC
ALC DET
VREF
MUTE
LINE AMP
REC AMP
EQ AMP
A-GND
REC-LP,EP
PB-EP
REC
HD SW
PB-
LP,SP
IN1
IN3
AGC
BIAS
BIAS1
BIAS2
FE-BT-VK-N
ARH
GNDAL
APH
AEH2
AEH1
CTL2
CTL1
1960
5602 TYPE
ECOB(M)
BLM21
LHL06
BC856B
BC327-40
BC846B
BC847B
BC817-40
BZX79-B7V5
7603
7604
7605
7606
7607
7608
31
32
33
34
GNDEO
GNDER
GNDEO
C600
C602
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H

1960	G6
2601	A5
2602	B6
2603	B6
2604	C6
2605	D4
2606	C5
2607	C5
2608	D6
2609	D2
2610	F8
2611	E8
2612	E8
2613	E5
2614	E10
2615	F2
2616	C6
2617	E6
2618	F10
2619	F10
2620	F4
2621	F4
2622	F9
2623	G9
2624	G3
2625	G4
2626	H6
2627	F8
3601	A4
3602	A6
3603	B4
3604	B4
3605	B4
3606	D4
3607	C6
3608	C6
3609	D5
3610	D2
3611	D3
3612	D6
3613	D6
3614	E4
3615	G8
3616	E8
3617	E2
3618	E5
3619	E2
3620	E4
3621	E10
3622	E6
3623	E10
3624	F2
3625	F10
3626	F5
3627	F10
3628	F3
3629	F9
3630	F9
3631	F6
3632	F3
3633	G2
5601	F7
5602	G4
5603	F6
6601	C5
7005	B9
7603	D4
7604	D3
7605	E4
7606	E5
7607	E2
7608	F2
9601	B6
9604	G9
C600	H2
C602	H2
F6001	G5
F6003	G5
F6004	G5
F6005	G5
F6006	G5
F6007	H5
F9601	B7
F9602	C6
F9603	E7
F9604	E8
F9605	F7
F9606	E9
F9607	E10
F9608	E10
F9609	F4
F9610	F3
I601	A7
I602	B7
I603	B7
I604	C7
I605	C7
I606	F8
I607	D7
I608	E8
I609	E8
I610	E7
I611	E10
I614	F9
I615	F9
I616	F8
I617	F10
I619	E6
I620	D6
I621	C6
I622	A4
I623	B4
I624	D5
I625	E4
I626	E4
I627	E4
I628	E4
I629	F5
I630	F4
I631	F3
I632	G2
I633	D5
I634	E2
I635	E2
I636	D2
I637	D3
I638	F3

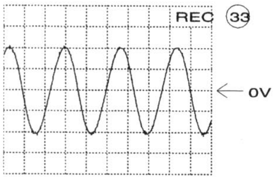
Oscillograms Audio Linear



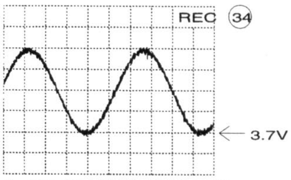
A: AC, 100mV/Div, 200us/Div
IC 7005 Pin 77



A: DC, 20 V/Div, 5us/Div
Connector 1960 Pin 1



A: DC, 5 V/Div, 5us/Div
Connector 1960 Pin 5



A: AC, 50mV/Div, 200us/Div
IC 7005 Pin 73

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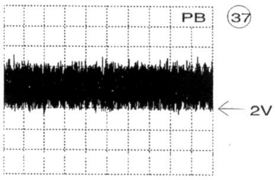
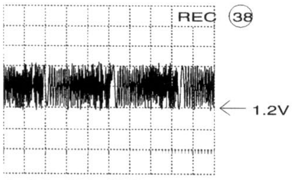
PS 3-18	FM-STEREO-TDA 3-22	AF 3-24	AL 3-26	HA 3-30	CNR 3-34	AIO1 3-36	DE 3-39	VPS; FOME; PE 3-42
FV 3-20	FM-STEREO-MSP 3-23	ER 3-25	VS 3-29	VS-SEC 3-33	IO 3-35	AIO2 3-40	VPO 3-41	

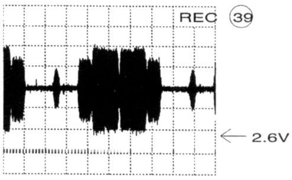
Oscillograms Video Signal Processing



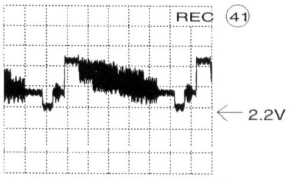
㊲ A: AC, 200mV/Div, 20us/Div
IC 7103 Pin 15



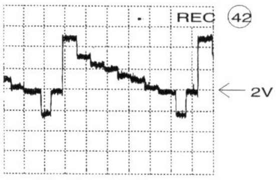
㊳ A: AC, 200mV/Div, 20us/Div
FMRV



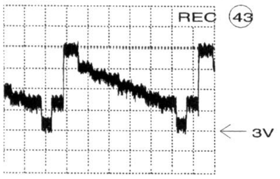
㊴ A: AC, 100mV/Div, 10us/Div
CPRV



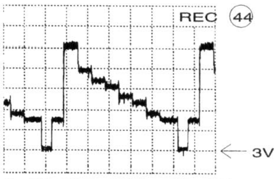
㊶ A: AC, 500mV/Div, 10us/Div
IC 7005 Pin 35



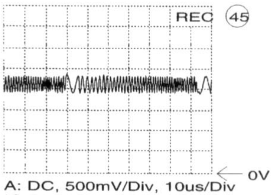
㊷ A: AC, 100mV/Div, 10us/Div
IC 7005 Pin 42



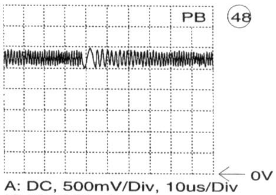
㊸ A: AC, 100mV/Div, 10us/Div
IC 7005 Pin 40



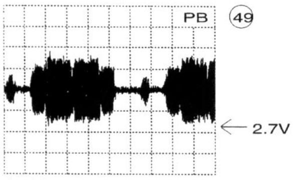
㊹ A: AC, 100mV/Div, 10us/Div
IC 7005 Pin 26



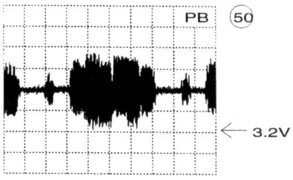
㊺ A: DC, 500mV/Div, 10us/Div
IC 7005 Pin 18



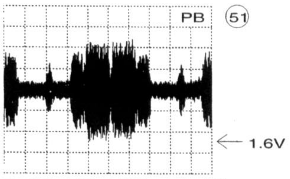
㊽ A: DC, 500mV/Div, 10us/Div
IC 7005 Pin 20



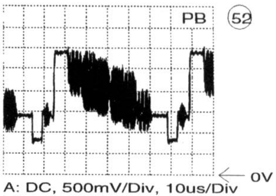
㊾ A: AC, 100mV/Div, 10us/Div
IC 7005 Pin 48/50



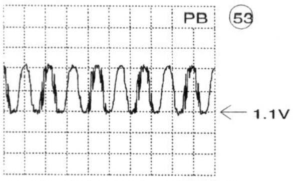
㊿ A: AC, 100mV/Div, 10us/Div
IC 7005 Pin 52



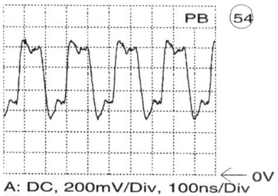
(51) A: AC, 100mV/Div, 10us/Div
IC 7005 Pin 45



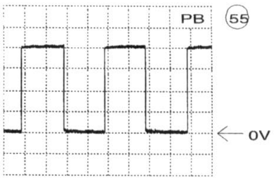
(52) A: DC, 500mV/Div, 10us/Div
IC 7005 Pin 35



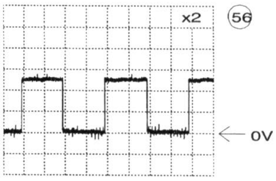
(53) A: AC, 200mV/Div, 100ns/Div
IC 7005 Pin 58



(54) A: DC, 200mV/Div, 100ns/Div
IC 7003 Pin 10



(55) A: DC, 200mV/Div, 10ms/Div
IC 7005 Pin 66



(56) A: DC, 500mV/Div, 10ms/Div
IC 7005 Pin 67

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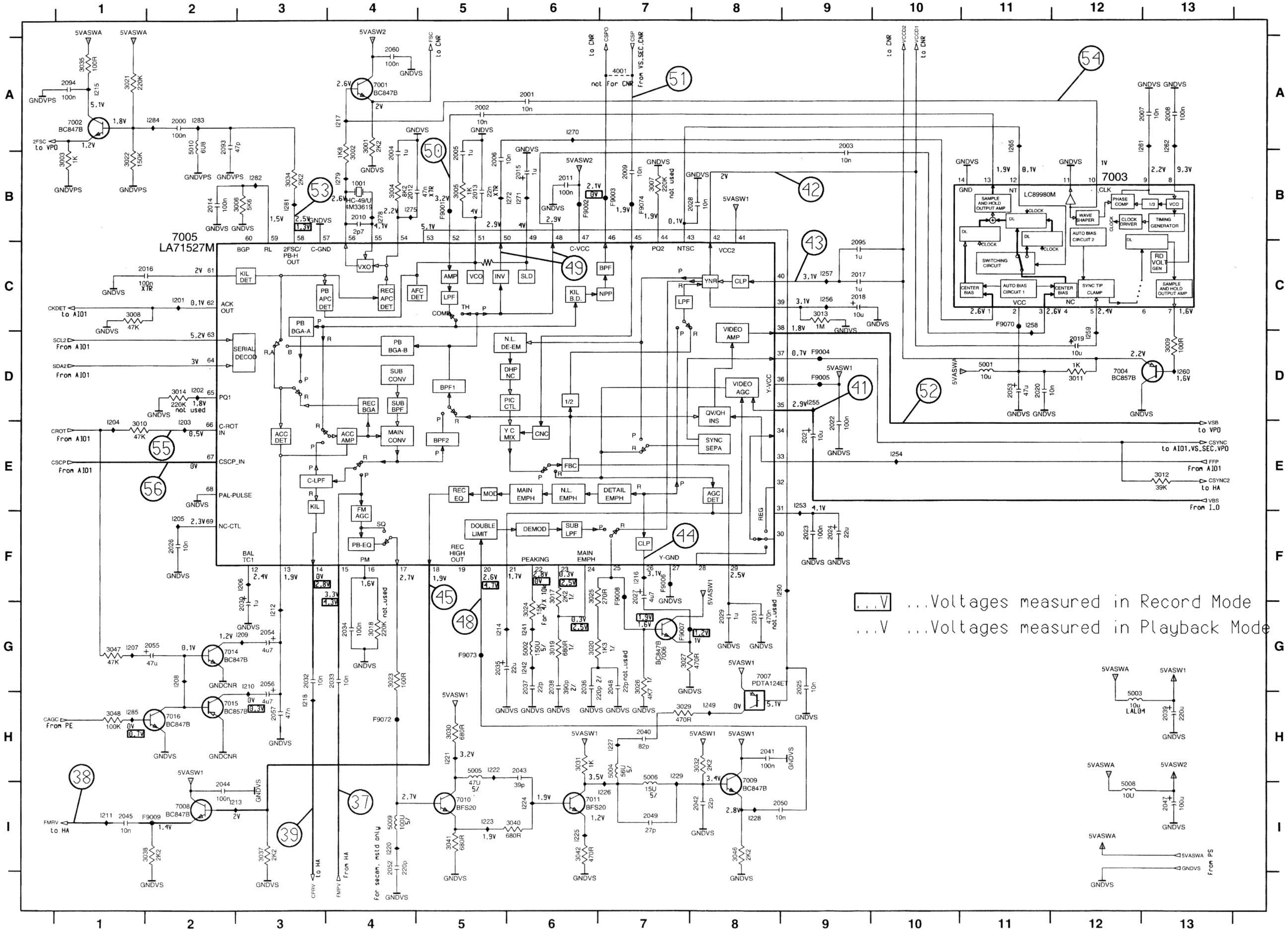
FV 3-20	FM-STEREO-MSP 3-23	ER 3-25	VS 3-29	VS-SEC 3-33	IO 3-35	AIO2 3-40	VPO 3-41	

Video Signal Processing (VS)

Interconnections Manual Page

PS 3-18	FM-STEREO-TDA 3-22	AF 3-24	AL 3-26	HA 3-30	CNR 3-34	AIO1 3-36	DE 3-39	VPS; FOME; PE
FV 3-20	FM-STEREO-MSP 3-23	ER 3-25	VS 3-29	VS-SEC 3-33	IO 3-35	AIO2 3-40	VPO 3-41	3-42


7005
LA71527M
7003
LC89980M
BGP
RL
2FSC/ PB-H OUT
C-GND
C-VCC
PQ2
NTSC
VCC2
KIL DET
SERIAL DECOD
ACK OUT
PQ1
C-ROT IN
CSCP_IN
PAL-PULSE
NC-CTL
BAL TC1
PM
REC HIGH OUT
PEAKING
MAIN EMPH
Y-GND
Y-VCC
VXO
AMP
VCO
INV
SLD
LPF
BPF
NPP
KIL B.D.
YNR
CLP
VIDEO AMP
VIDEO AGC
QV/QH INS
SYNC SEPA
AGC DET
REG
PB APC DET
REC APC DET
AFC DET
PB BGA-A
PB BGA-B
SUB CONV
REC BGA
SUB BPF
ACC DET
ACC AMP
MAIN CONV
BPF1
BPF2
C-LPF
KIL
FM AGC
PB-EQ
REC EQ
MOD
MAIN EMPH
N.L. EMPH
DETAIL EMPH
DOUBLE LIMIT
DEMOD
SUB LPF
N.L. DE-EM
DHP NC
PIC CTL
Y C MIX
CNC
FBC
1/2
SAMPLE AND HOLD OUTPUT AMP
CLOCK
WAVE SHAPER
PHASE COMP
CLOCK DRIVER
TIMING GENERATOR
AUTO BIAS CIRCUIT 2
SWITCHING CIRCUIT
CENTER BIAS
AUTO BIAS CIRCUIT 1
SYNC TIP CLAMP
RD VOLT GEN
5VASWA
5VASW1
5VASW2
GNDVS
GNDVPS
GNDCNR
to CNR
From VS,SEC,CNR
not For CNR
2FSC to VPO
CKDET to AIO1
SCL2 From AIO1
SDA2 From AIO1
CROT From AIO1
CSCP From AIO1
CAGC From PE
FMRV to HA
CPRV to HA
FMPV From HA
For secam, mstd only
VSB to VPO
CSYNC to AIO1,VS_SEC,VPO
FFP From AIO1
CSYNC2 to HA
VBS From I_O
From PS
...V ...Voltages measured in Record Mode
...V ...Voltages measured in Playback Mode
1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H I

1001	B4
2000	A2
2001	A6
2002	A5
2003	A9
2004	B4
2005	B5
2006	B5
2007	A13
2008	A13
2009	B7
2010	B4
2011	B6
2012	B4
2013	B5
2014	B2
2015	B6
2016	C1
2017	C9
2018	C9
2019	D12
2020	D11
2021	E9
2022	E9
2023	F9
2024	F9
2025	G9
2026	F2
2027	F7
2028	B8
2029	G8
2030	G3
2031	G8
2032	G3
2033	G4
2034	G4
2035	G5
2036	G6
2037	G6
2038	G6
2039	H13
2040	H7
2041	H8
2042	I8
2043	H6
2044	I2
2045	I1
2047	I13
2048	G7
2049	I7
2050	I8
2052	I4
2053	D11
2054	G3
2055	G2
2056	G3
2057	H3
2060	A4
2093	A2
2094	A1
2095	C9
3001	A4
3002	B4
3003	B1
3004	B4
3005	B5
3006	B3
3007	B7
3008	C1
3009	D13
3010	E1
3011	D12
3012	E13
3013	C9
3014	D2
3017	F6
3018	G4
3019	G6
3020	G6
3021	A1
3022	B1
3023	G4
3024	G6
3025	F6
3026	G7
3027	G7
3029	H7
3030	H5
3031	H6
3032	H8
3034	B3
3035	A1
3037	I3
3038	I2
3040	I6
3041	I5
3042	I6
3046	I8
3047	G1
3048	H1
4001	A7
5001	D11
5002	G6
5003	H12
5004	H7
5005	H5
5006	H7
5008	I12
5009	I4
5010	A2
7001	A4
7002	A1
7003	B12
7004	D12
7005	B2
7006	G7
7007	G8
7008	I2
7009	I8
7010	I5
7011	I6
7014	G2
7015	H2
7016	H2
F9001	B5
F9002	B6
F9003	B7
F9004	D9
F9005	D9
F9006	F7
F9007	G7
F9008	F7
F9009	I2
F9070	C11
F9072	H4
F9073	G5
F9074	B7
I201	C2
I202	D2
I203	E2
I204	E1
I205	F2
I206	F3
I207	G1
I208	G2
I209	G3
I210	G3
I211	I1
I212	G3
I213	I2
I214	G5
I215	A1
I216	F7
I217	A4
I218	H3
I220	I4
I221	H5
I222	H5
I223	I5
I224	I6
I225	I6
I226	I7
I227	H7
I228	I8
I229	H7
I241	G6
I242	G6
I249	H8
I250	F8
I253	E9
I254	E10
I255	D9
I256	C9
I257	C9
I258	C11
I259	D12
I260	D13
I261	A12
I262	A13
I265	A11
I270	A6
I271	B6
I272	B6
I275	B4
I278	B4
I279	B4
I281	B3
I282	B3
I283	A2
I284	A2
I285	H1

Head Amplifier (HA)

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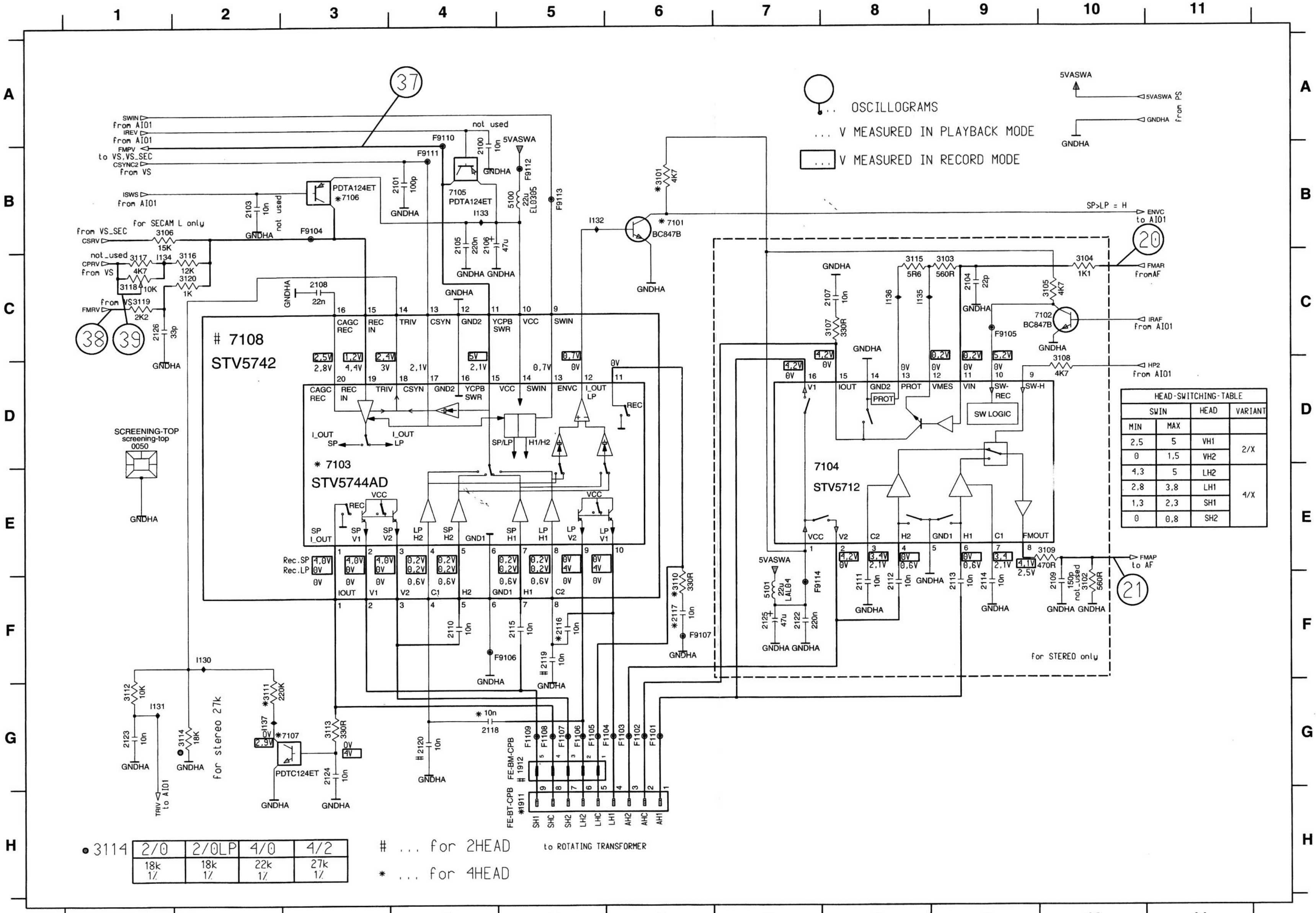
PS 3-18	FM-STEREO-TDA 3-22	AF 3-24	AL 3-26	HA 3-30	CNR 3-34	AIO1 3-36	DE 3-39	VPS; FOME; PE 3-42
FV 3-20	FM-STEREO-MSP 3-23	ER 3-25	VS 3-29	VS-SEC 3-33	IO 3-35	AIO2 3-40	VPO 3-41	



1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
37
38
39
20
21
SWIN from AI01
IREV from AI01
FMPV to VS,VS_SEC
CSYNC2 from VS
ISWS from AI01
for SECAM L only
from VS_SEC
CSRV
3106 15K
not_used
CPRV from VS
3117 4K7
I134
3116 12K
3120 1K
3118 10K
FMRV from VS
3119 2K2
2126 33p
GNDHA
PDTA124ET
*7106
2103 10n
not used
F9104
F9110
F9111
2101 100p
not used
2100 10n
5VASWA
7105 PDTA124ET
I133
F9112
5100 22u EL0305
F9113
2105 220n
2106 47u
2108 22n
# 7108
STV5742
CAGC REC
REC IN
TRIV
CSYN
GND2
YCPB SWR
VCC
SWIN
2,5V
1,2V
2,4V
5V
0,7V
2,8V
4,4V
3V
2,1V
0,7V
0V
ENVC
I_OUT LP
REC
I_OUT SP
SP/LP
H1/H2
* 7103
STV5744AD
VCC
SP I_OUT
SP V1
SP V2
LP H2
SP H2
GND1
SP H1
LP H1
LP V2
LP V1
Rec.SP
Rec.LP
4,0V
0V
0,2V
0,6V
4V
IOUT
V1
V2
C1
H2
GND1
H1
C2
SCREENING-TOP
screening-top
0050
I132
*3101 4K7
*7101 BC847B
I130
3112 10K
I131
2123 10n
3114 18K
for stereo 27k
TRIV to AI01
*3111 220K
I137
*7107
2,9V
PDTC124ET
3113 330R
2124 10n
2110 10n
2115 10n
*2116 10n
# 2119 10n
F9106
*3110 330R
*2117 10n
F9107
*10n 2118
# 2120 10n
FE-BM-CPB # 1912
FE-BT-CPB # 1911
F1109
F1108
F1107
F1106
F1105
F1104
F1103
F1102
F1101
SH1
SHC
SH2
LH2
LHC
LH1
AH2
AHC
AH1
to ROTATING TRANSFORMER
OSCILLOGRAMS
... V MEASURED IN PLAYBACK MODE
... V MEASURED IN RECORD MODE
5VASWA
from PS
SP>LP = H
ENVC to AI01
GNDHA
3115 5R6
3103 560R
2104 22p
3104 1K1
FMAR fromAF
I136
I135
2107 10n
3107 330R
3105 4K7
7102 BC847B
F9105
IRAF from AI01
3108 4K7
HP2 from AI01
4,2V
0V
IOUT
GND2
PROT
VMES
VIN
SW-REC
SW-H
SW LOGIC
7104
STV5712
VCC
V2
C2
H2
GND1
H1
C1
FMOUT
3,4V
2,1V
0,6V
3,1V
2,5V
3109 470R
FMAP to AF
5101 22u LAL04
2125 47u
2122 220n
F9114
2111 10n
2112 10n
2113 10n
2114 10n
2109 150p not used
3102 560R
for STEREO only

HEAD-SWITCHING-TABLE			
SWIN		HEAD	VARIANT
MIN	MAX		
2,5	5	VH1	2/X
0	1,5	VH2	
4,3	5	LH2	4/X
2,8	3,8	LH1	
1,3	2,3	SH1	
0	0,8	SH2	

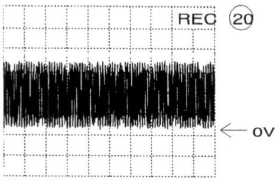
● 3114	2/0	2/0LP	4/0	4/2
	18k 1%	18k 1%	22k 1%	27k 1%

# ... for 2HEAD

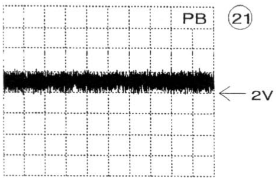
* ... for 4HEAD

0050	D1
1911	H5
1912	G5
2100	B4
2101	B4
2103	B2
2104	C9
2105	B4
2106	B4
2107	C8
2108	C3
2109	F10
2110	F4
2111	F8
2112	F8
2113	F9
2114	F9
2115	F5
2116	F5
2117	F6
2118	G4
2119	F5
2120	G4
2122	F7
2123	G1
2124	G3
2125	F7
2126	C1
3101	B6
3102	F10
3103	C9
3104	C10
3105	C10
3106	B1
3107	C8
3108	D10
3109	E10
3110	F6
3111	G2
3112	G1
3113	G3
3114	G2
3115	C8
3116	C2
3117	C1
3118	C1
3119	C1
3120	C2
5100	B5
5101	F7
7101	B6
7102	C10
7103	E3
7104	E7
7105	B4
7106	B3
7107	G3
7108	C2
F1101	G6
F1102	G6
F1103	G6
F1104	G6
F1105	G5
F1106	G5
F1107	G5
F1108	G5
F1109	G5
F9104	B3
F9105	C9
F9106	F5
F9107	F6
F9110	A4
F9111	B4
F9112	B5
F9113	B5
F9114	F7
I130	F2
I131	G1
I132	B5
I133	B4
I134	C1
I135	C8
I136	C8
I137	G2

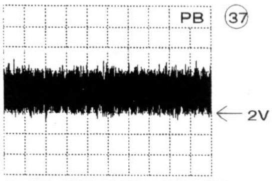
Oscillograms Head Amplifier



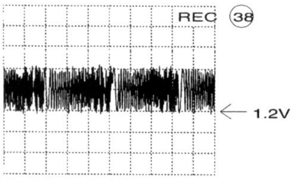
A: DC, 200mV/Div, 5ms/Div
FMAR



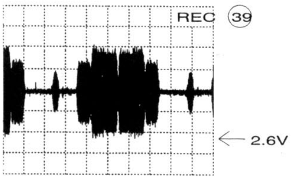
A: AC, 200mV/Div, 500us/Div
FMAP



A: AC, 200mV/Div, 20us/Div
IC 7103 Pin 15



A: AC, 200mV/Div, 20us/Div
FMRV

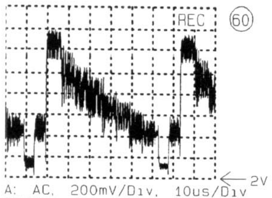


A: AC, 100mV/Div, 10us/Div
CPRV

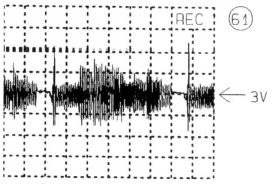
Interconnections Manual Page

PS 3-18	FM-STEREO-TDA 3-22	AF 3-24	AL 3-26	HA 3-30	CNR 3-34	AIO1 3-36	DE 3-39	VPS; FOME; PE 3-42
FV 3-20	FM-STEREO-MSP 3-23	ER 3-25	VS 3-29	VS-SEC 3-33	IO 3-35	AIO2 3-40	VPO 3-41	

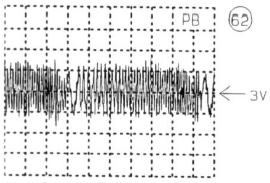
Oscillograms SECAM L Chroma Processing



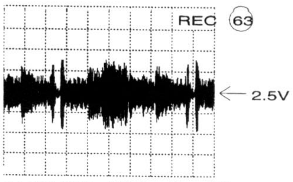
A: AC, 200mV/Div, 10us/Div
IC7072 Pin 15



A: AC, 200mV/Div, 10us/Div
IC 7072 Pin 11



A: AC, 50mV/Div, 10us/Div
IC 7072 Pin 13

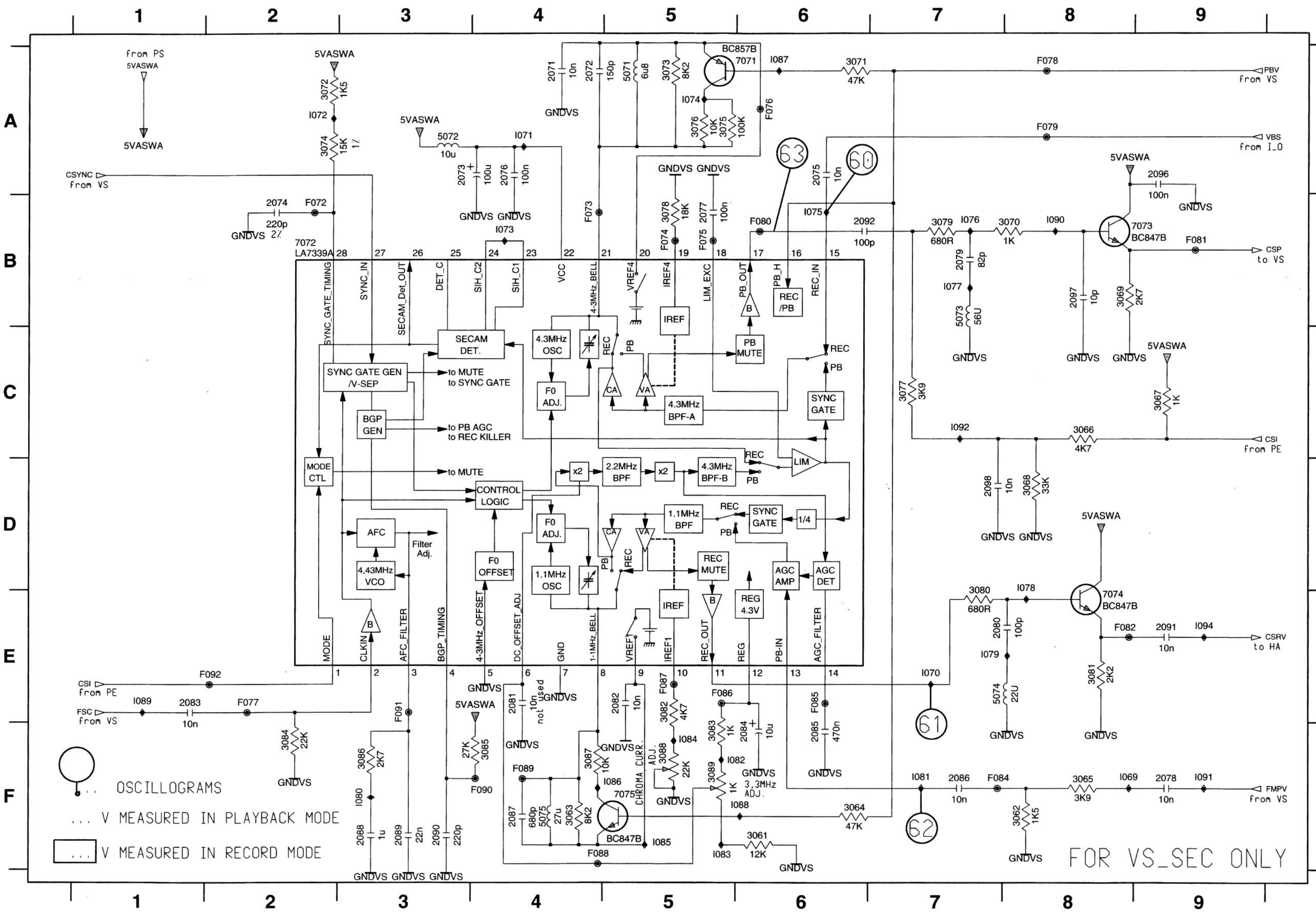


A: AC, 200mV/Div, 10us/Div
IC 7066 Pin 17

Interconnections Manual Page

PS 3-18	FM-STEREO-TDA 3-22	AF 3-24	AL 3-26	HA 3-30	CNR 3-34	AIO1 3-36	DE 3-39	VPS; FOME; PE 3-42
FV 3-20	FM-STEREO-MSP 3-23	ER 3-25	VS 3-29	VS-SEC 3-33	IO 3-35	AIO2 3-40	VPO 3-41	

Chroma Processing SECAM L (VS_SECAM)


1 2 3 4 5 6 7 8 9
A B C D E F
from PS
5VASWA
CSYNC from VS
CSI from PE
FSC from VS
7072 LA7339A
SYNC_GATE_TIMING
SYNC_IN
SECAM_Det_OUT
DET_C
SIH_C2
SIH_C1
VCC
4-3MHz_BELL
VREF4
IREF4
LIM_EXC
PB_OUT
PB_H
REC_IN
MODE
CLKIN
AFC_FILTER
BGP_TIMING
4-3MHz_OFFSET
DC_OFFSET_ADJ
GND
1-1MHz_BELL
VREF1
IREF1
REC_OUT
REG
PB-IN
AGC_FILTER
SYNC GATE GEN /V-SEP
to MUTE to SYNC GATE
BGP GEN
to PB AGC to REC KILLER
MODE CTL
to MUTE
SECAM DET.
CONTROL LOGIC
AFC
4,43MHz VCO
Filter Adj.
F0 OFFSET
4.3MHz OSC
F0 ADJ.
1.1MHz OSC
CA
VA
4.3MHz BPF-A
IREF
PB MUTE
REC /PB
SYNC GATE
x2
2.2MHz BPF
4.3MHz BPF-B
LIM
1.1MHz BPF
1/4
REC MUTE
REG 4.3V
AGC AMP
AGC DET
REC
PB
BC857B 7071
BC847B 7073
BC847B 7074
BC847B 7075
PBV from VS
VBS from I_O
CSP to VS
CSI from PE
CSRV to HA
FMPV from VS
GNDVS
CHROMA CURR. ADJ.
3,3MHz ADJ.
not used
63
60
61
62
OSCILLOGRAMS
... V MEASURED IN PLAYBACK MODE
... V MEASURED IN RECORD MODE
FOR VS_SEC ONLY

2071	A4
2072	A4
2073	A3
2074	B2
2075	A6
2076	A4
2077	B5
2078	F9
2079	B7
2080	E7
2081	E4
2082	E5
2083	E1
2084	F6
2085	F6
2086	F7
2087	F4
2088	F3
2089	F3
2090	F3
2091	E9
2092	B6
2096	A9
2097	B8
2098	D7
3061	F6
3062	F8
3063	F4
3064	F6
3065	F8
3066	C8
3067	C9
3068	D8
3069	B8
3070	B8
3071	A6
3072	A2
3073	A5
3074	A2
3075	A5
3076	A5
3077	C7
3078	B5
3079	B7
3080	E7
3081	E8
3082	E5
3083	F5
3084	F2
3085	F4
3086	F3
3087	F4
3088	F5
3089	F5
5071	A5
5072	A3
5073	B7
5074	E7
5075	F4
7071	A6
7072	B2
7073	B8
7074	E8
7075	F5
F072	B2
F073	B4
F074	B5
F075	B5
F076	A6
F077	E2
F078	A8
F079	A8
F080	B6
F081	B9
F082	E8
F084	F7
F085	E6
F086	E5
F087	E5
F088	F4
F089	F4
F090	F4
F091	E3
F092	E2
I069	F8
I070	E7
I071	A4
I072	A2
I073	B4
I074	A5
I075	B6
I076	B7
I077	B7
I078	D8
I079	E7
I080	F3
I081	F7
I082	F6
I083	F5
I084	F5
I085	F5
I086	F5
I087	A6
I088	F6
I089	E1
I090	B8
I091	F9
I092	C7
I094	E9

Chroma Noise Reduction (CNR)

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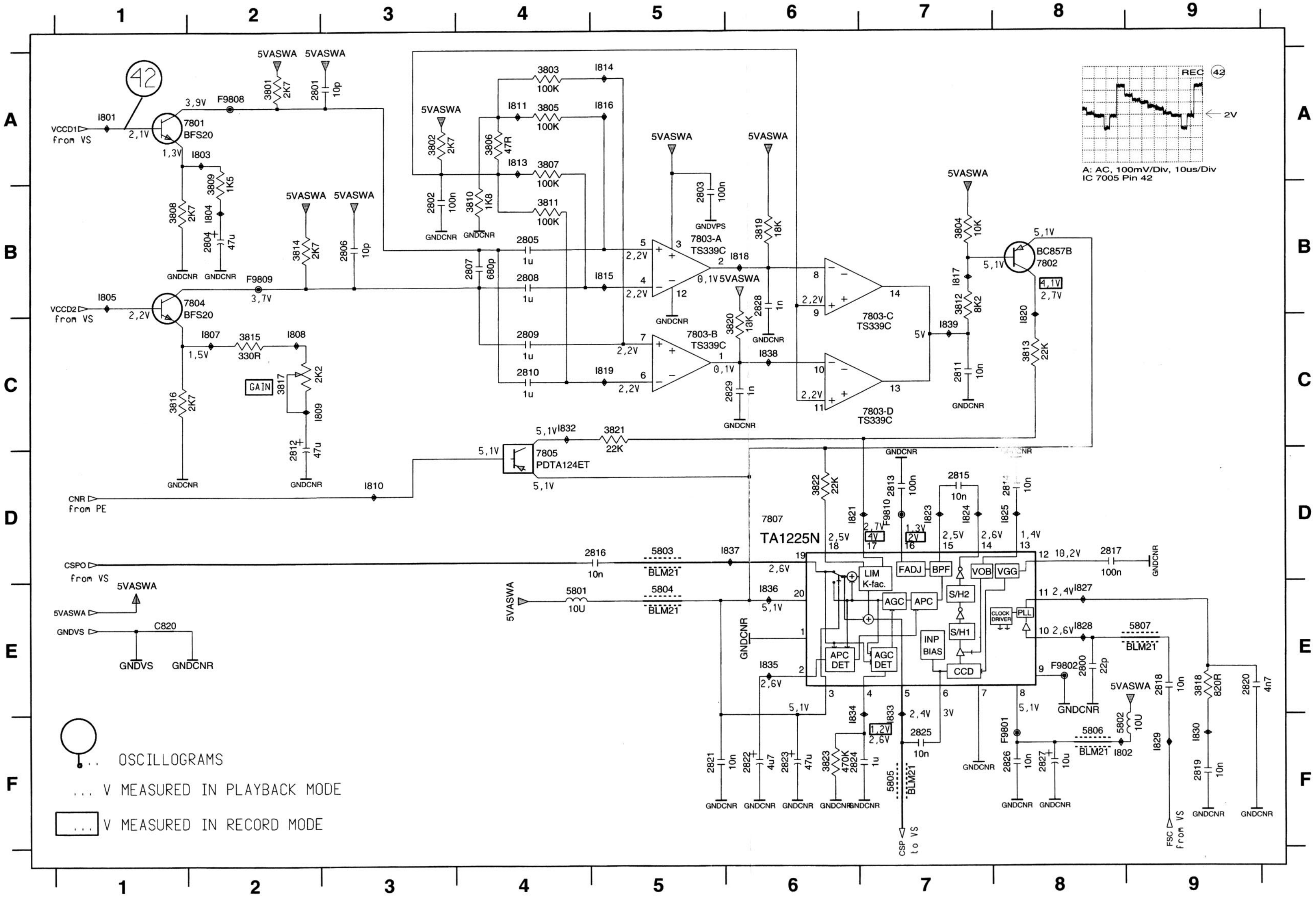
PS 3-18	FM-STEREO-TDA 3-22	AF 3-24	AL 3-26	HA 3-30	CNR 3-34	AIO1 3-36	DE 3-39	VPS; FOME; PE 3-42
FV 3-20	FM-STEREO-MSP 3-23	ER 3-25	VS 3-29	VS-SEC 3-33	IO 3-35	AIO2 3-40	VPO 3-41	


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
42
VCCD1 from VS
I801
2,1V
3,9V
F9808
7801
BFS20
1,3V
I803
3808 2K7
3809 1K5
I804
2804 47u
GNDCNR
5VASWA
3801 2K7
2801 10p
VCCD2 from VS
I805
2,2V
7804
BFS20
F9809
3,7V
I807
3815 330R
I808
1,5V
3816 2K7
GAIN
3817 2K2
I809
2812 47u
3814 2K7
2806 10p
3802 2K7
2802 100n
3806 47R
3810 1K8
3803 100K
3805 100K
3807 100K
3811 100K
I811
I813
I814
I816
2805 1u
2807 680p
2808 1u
2809 1u
2810 1u
I815
I819
2,2V
7803-A TS339C
7803-B TS339C
7803-C TS339C
7803-D TS339C
2803 100n
GNDVPS
I818
0,1V
3820 13K
2829 1n
3819 18K
2828 1n
I838
I839
5V
3804 10K
I817
3812 8K2
2811 10n
7802 BC857B
5,1V
4,1V
2,7V
I820
3813 22K
7805 PDTA124ET
I832
3821 22K
CNR from PE
I810
CSPO from VS
2816 10n
5803 BLM21
5801 10U
5804 BLM21
I837
I836
2,6V
5,1V
5VASWA
GNDVS
C820
7807
TA1225N
LIM K-fac.
FADJ
BPF
VOB
VGG
AGC
APC
S/H2
S/H1
CLOCK DRIVER
PLL
INP BIAS
APC DET
AGC DET
CCD
3822 22K
2813 100n
F9810
2815 10n
2814 10n
I821
I823
I824
I825
2,5V
2,7V
4V
1,3V
2V
2,6V
1,4V
10,2V
2817 100n
I827
2,4V
I828
5807 BLM21
F9802
2800 22p
2818 10n
3818 820R
2820 4n7
I829
I830
2819 10n
FSC from VS
I835
2821 10n
2822 4u7
2823 47u
3823 470K
2824 1u
I834
I833
1,2V
2825 10n
3V
5805 BLM21
CSP to VS
F9801
2826 10n
2827 10u
5806 BLM21
5802 10U
I802
REC 42
2V
A: AC, 100mV/Div, 10us/Div
IC 7005 Pin 42
OSCILLOGRAMS
... V MEASURED IN PLAYBACK MODE
... V MEASURED IN RECORD MODE

2800	E8
2801	A2
2802	B3
2803	B5
2804	B2
2805	B4
2806	B3
2807	B4
2808	B4
2809	C4
2810	C4
2811	C7
2812	D2
2813	D7
2814	D8
2815	D7
2816	D5
2817	D8
2818	E9
2819	F9
2820	E9
2821	F5
2822	F6
2823	F6
2824	F6
2825	F7
2826	F8
2827	F8
2828	B6
2829	C6
3801	A2
3802	A3
3803	A4
3804	B7
3805	A4
3806	A4
3807	A4
3808	B1
3809	A2
3810	B4
3811	B4
3812	B7
3813	C8
3814	B2
3815	C2
3816	C1
3817	C2
3818	E9
3819	B6
3820	C6
3821	C5
3822	D6
3823	F6
5801	E4
5802	F8
5803	D5
5804	E5
5805	F7
5806	F8
5807	E9
7801	A1
7802	B8
7803-A	B5
7803-B	C5
7803-C	B7
7803-D	C7
7804	B1
7805	D4
7807	D6
C820	E1
F9801	F8
F9802	E8
F9808	A2
F9809	B2
F9810	D7
I801	A1
I802	F8
I803	A2
I804	B2
I805	B1
I807	C2
I808	C2
I809	C2
I810	D3
I811	A4
I813	A4
I814	A5
I815	B5
I816	A5
I817	B7
I818	B6
I819	C5
I820	C8
I821	D6
I823	D7
I824	D7
I825	D8
I827	E8
I828	E8
I829	F9
I830	F9
I832	C4
I833	F7
I834	F6
I835	E6
I836	E6
I837	D6
I838	C6
I839	C7

Input/Output (I_O)

Interconnections Manual Page

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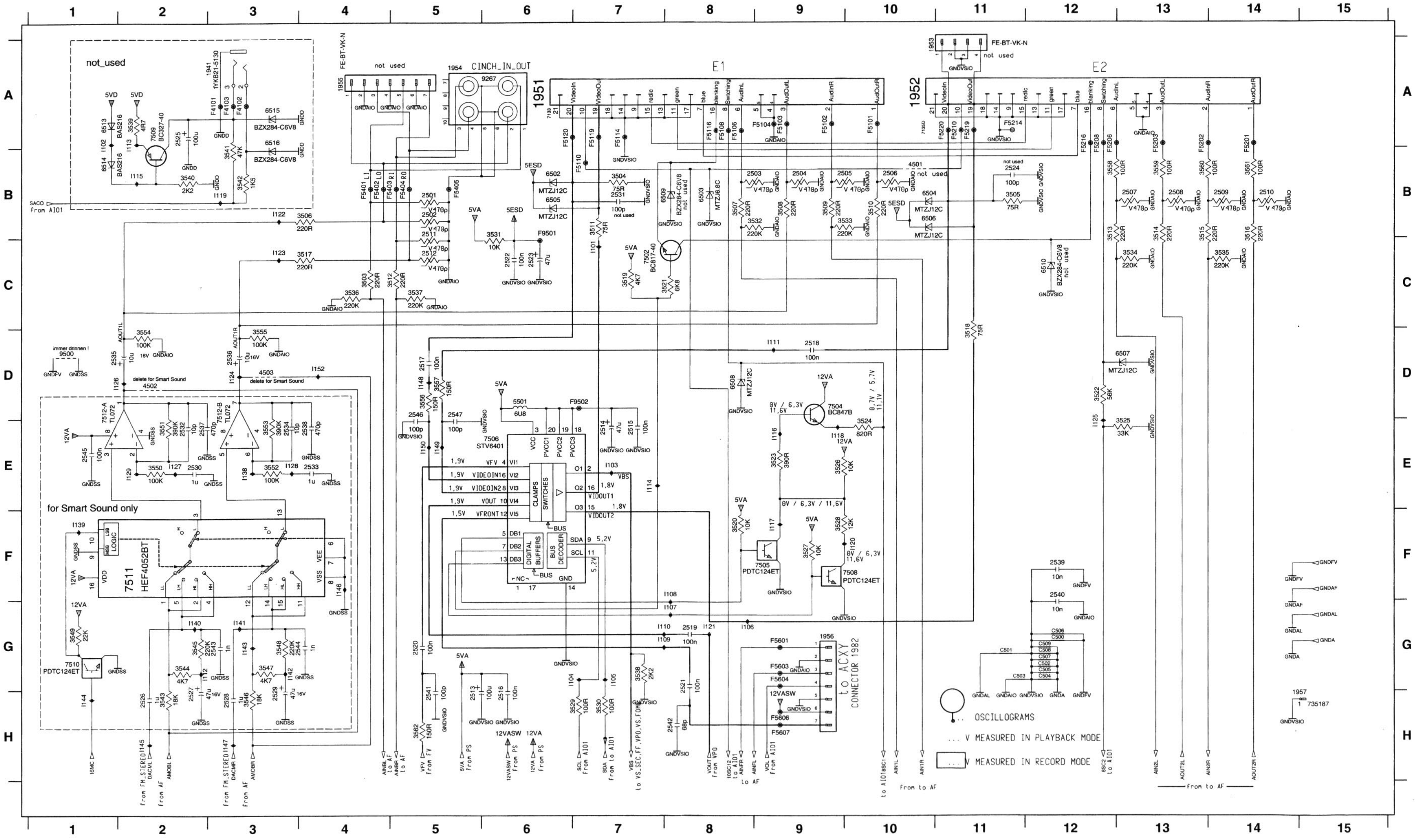
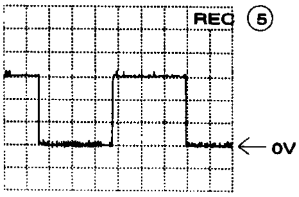
FV 3-20	FM-STEREO-MSP 3-23	ER 3-25	VS 3-29	VS-SEC 3-33	IO 3-35	AIO2 3-40	VPO 3-41	

1941 A3
1951 A6
1952 A10
1953 A10
1954 A5
1955 A4
1956 G9
1957 H15
2501 B5
2502 B5
2503 B8
2504 B9
2505 B9
2506 B10
2507 B13
2508 B13
2509 B14
2510 B14
2511 B5
2512 C5
2513 H5
2514 E7
2515 E7
2516 H6
2517 D5
2518 D9
2519 G8
2520 G5
2521 G8
2522 C6
2523 C6
2524 B11
2525 A2
2526 H2
2527 H2
2528 H3
2529 H3
2530 E2
2531 B7
2532 E2
2533 E4
2534 E3
2535 D1
2536 D3
2537 E2
2538 E4
2539 F12
2540 F12
2541 H5
2542 H8
2543 G3
2544 G4
2545 E1
2546 D5
2547 D5
3503 C4
3504 B7
3505 B11
3506 B4
3507 B8
3508 B9
3509 B9
3510 B10
3511 B7
3512 C5
3513 B12
3514 B13
3515 B13
3516 B14
3517 C4
3518 D11
3519 C7
3520 F8
3521 C8
3522 D12
3523 E9
3524 E10
3525 E13
3526 E9
3527 F9
3528 F9
3529 H7
3530 H7
3531 B6
3532 B9
3533 B10
3534 C13
3535 C14
3536 C4
3537 C5
3538 G7
3539 A2
3540 B2
3541 B3
3542 B3
3543 H2
3544 G2
3545 G2
3546 H3
3547 G3
3548 G3
3549 G1
3550 E2
3551 E2
3552 E3
3553 E3
3554 D2
3555 D3
3556 D5
3557 D5
3558 B12
3559 B13
3560 B13
3561 B14
3562 H5
4501 B10
4502 D2
4503 D3
5501 D6
6502 B6
6503 B8
6504 B10
6505 B6
6506 B10
6507 D13
6508 D8
6509 B8
6510 C12
6513 A1
6514 B1
6515 A3
6516 A3
7502 C7
7504 D9
7505 F9
7506 E6
7508 F9
7509 A2
7510 G1
7511 F2
7512-A E1
7512-B E3
9500 D1
C500 G12
C501 G11
C502 G12
C503 G11
C504 G12
C505 G12
C506 G12
C507 G12
C508 G12
C509 G12
F4101 A3
F4102 A3
F4103 A3
F5101 A10
F5102 A9
F5103 A9
F5104 A9
F5106 A8
F5108 A8
F5110 B7
F5114 A7
F5116 A8
F5119 A7
F5120 A6
F5201 A14
F5202 A13
F5203 A13
F5206 A12
F5208 A12
F5210 A11
F5214 A11
F5216 A12
F5219 A11
F5220 A11
F5401 B4
F5402 B4
F5403 B5
F5404 B5
F5405 B5
F5601 G9
F5603 G9
F5604 G9
F5606 H9
F5607 H9
F9501 B6
F9502 D7
I101 C7
I102 A1
I103 E7
I104 G6
I105 G7
I106 G8
I107 G8
I108 F8
I109 G7
I110 G7
I111 D9
I112 G2
I113 A2
I114 E7
I115 B2
I116 E9
I117 F9
I118 E9
I119 B3
I120 F10
I121 G8
I122 B3
I123 C3
I124 D3
I125 E12
I126 D1
I127 E2
I128 E3
I129 E2
I138 E3
I139 F1
I140 G2
I141 G3
I142 G3
I143 G3
I144 H1
I145 H2
I146 F4
I147 H3
I148 D5
I149 E5
I150 E5
I152 D4

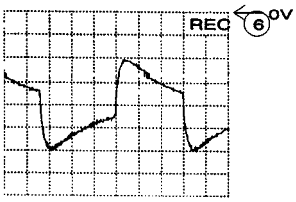

not_used
CINCH_IN_OUT
E1
E2
FE-BT-VK-N
not used
7506 STV6401
CLAMPS SWITCHES
DIGITAL BUFFERS
BUS DECODER
7511 HEF4052BT
LOGIC
7512-A TL072
7512-B TL072
7504 BC847B
7502 BC817-40
7505 PDTC124ET
7508 PDTC124ET
7510 PDTC124ET
for Smart Sound only
delete for Smart Sound
immer drinnen !
1956 to ACXY CONNECTOR 1982
OSCILLOGRAMS
V MEASURED IN PLAYBACK MODE
V MEASURED IN RECORD MODE
SACO from AIO1
from FM_STEREO
from AF
from PS
from AIO1
to AF
to VS,SEC,FF,VPO,VS,FOME
from VPO
to AIO1
from to AF
1957 735187
A B C D E F G H
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Oscillograms Central / Deck Control



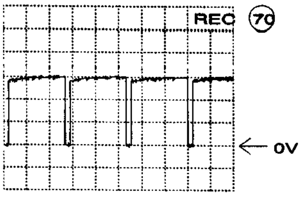
⑤

A: DC, 500mV/Div, 5us/Div
Connector 1944 Pin 13



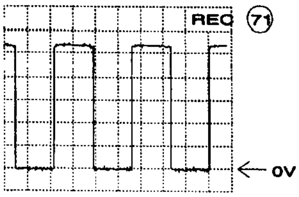
⑥

A: DC, 5 V/Div, 5us/Div
Connector 1944 Pin 5



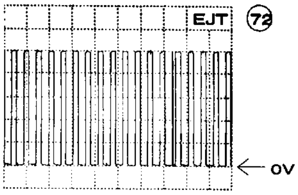
(70)

A: DC, 5 V/Div, 5ms/Div
Collector 7407



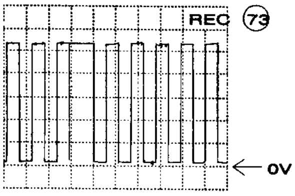
(71)

A: DC, 1 V/Div, 200ms/Div
IC 7406 Pin 6/7



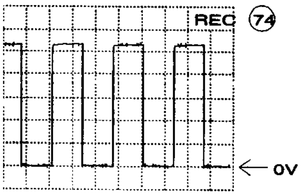
(72)

A: DC, 1 V/Div, 20ms/Div
IC 7406 Pin 3



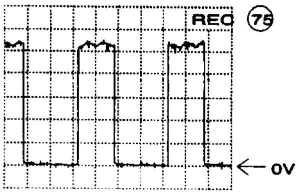
(73)

A: DC, 1 V/Div, 2ms/Div
IC 7406 Pin 28



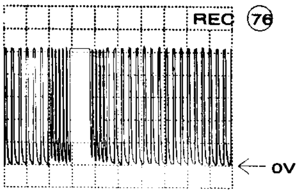
(74)

A: DC, 1 V/Div, 500us/Div
IC 7406 Pin 32



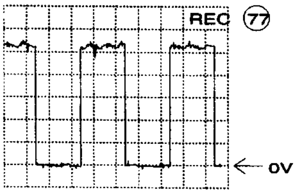
(75)

A: DC, 1 V/Div, 10ms/Div
IC 7406 Pin 27/42



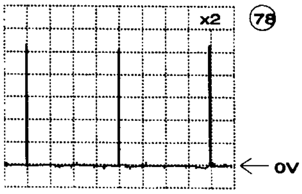
(76)

A: DC, 1 V/Div, 200us/Div
IC 7406 Pin 33



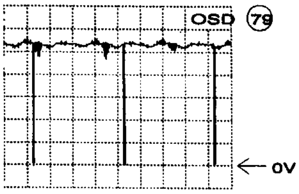
(77)

A: DC, 1 V/Div, 10ms/Div
IC 7406 Pin 36



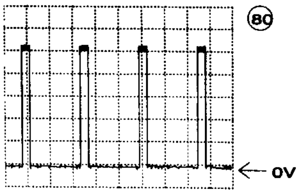
(78)

A: DC, 1 V/Div, 5ms/Div
IC 7406 Pin 37



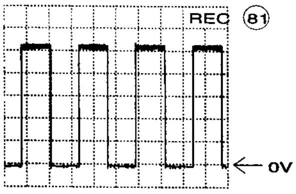
(79)

A: DC, 1 V/Div, 5ms/Div
IC 7406 Pin 39



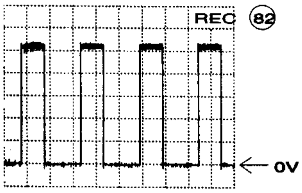
(80)

A: DC, 1 V/Div, 10us/Div
IC 7406 Pin 89



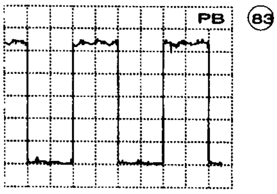
(81)

A: DC, 1 V/Div, 10us/Div
IC 7406 Pin 88



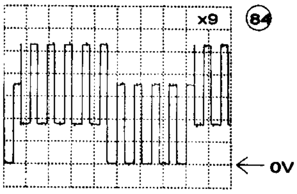
(82)

A: DC, 1 V/Div, 10us/Div
IC 7406 Pin 87



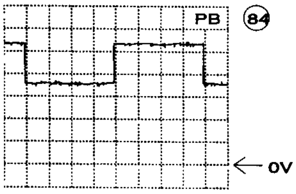
(83)

A: DC, 1 V/Div, 10ms/Div
IC 7406 Pin 86



(84)

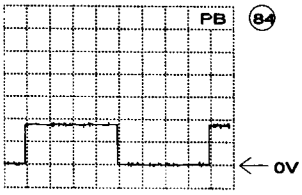
A: DC, 1 V/Div, 5ms/Div
SWIN



(84)

A: DC, 1 V/Div, 5ms/Div
SWIN

Longplay



(84)

A: DC, 1 V/Div, 5ms/Div
SWIN

Standard Play

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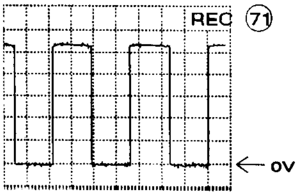
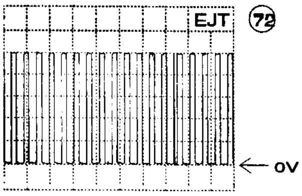
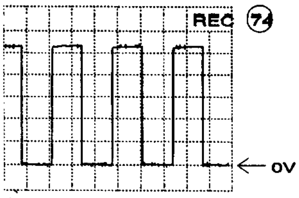
Oscillograms Deck Electronics



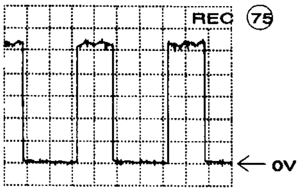
A: DC, 1 V/Div, 200ms/Div
IC 7406 Pin 6/7



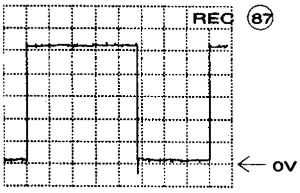
A: DC, 1 V/Div, 20ms/Div
IC 7406 Pin 3



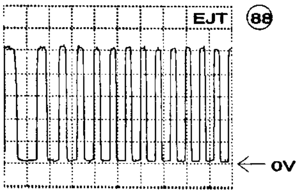
A: DC, 1 V/Div, 500us/Div
IC 7406 Pin 32



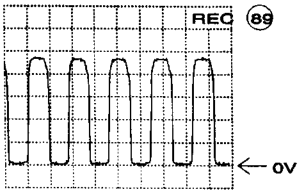
A: DC, 1 V/Div, 10ms/Div
IC 7406 Pin 27/42



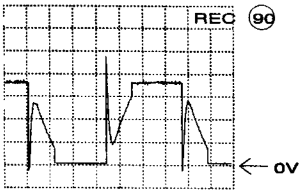
A: DC, 1 V/Div, 5ms/Div
IC 7443 Pin 2



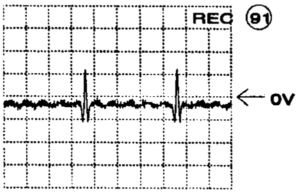
A: DC, 1 V/Div, 20ms/Div
IC 7443 Pin 5



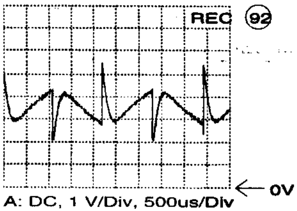
A: DC, 1 V/Div, 500ms/Div
IC 7443 Pin 6/7



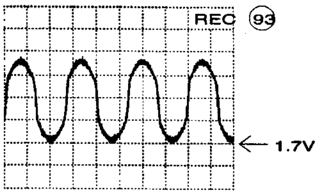
A: DC, 2 V/Div, 1ms/Div
Connector 1948 Pin 1/2/3



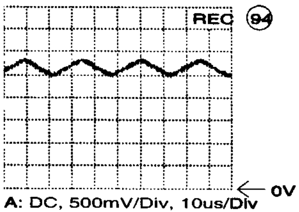
A: DC, 200mV/Div, 10ms/Div
Connector 1948 Pin 5



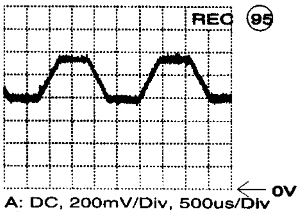
A: DC, 1 V/Div, 500us/Div
Connector 1948 Pin 4



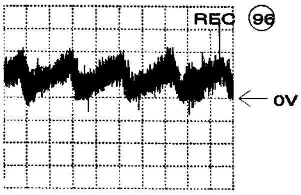
A: DC, 500mV/Div, 500us/Div
Connector 1946 Pin 4



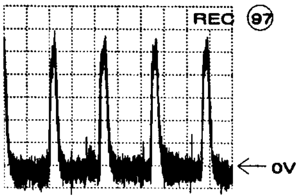
A: DC, 500mV/Div, 10us/Div
Connector 1946 Pin 6



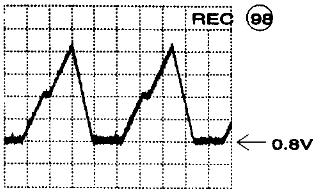
A: DC, 200mV/Div, 500us/Div
IC 7446 Pin 10



A: DC, 50mV/Div, 500us/Div
IC 7446 Pin 11

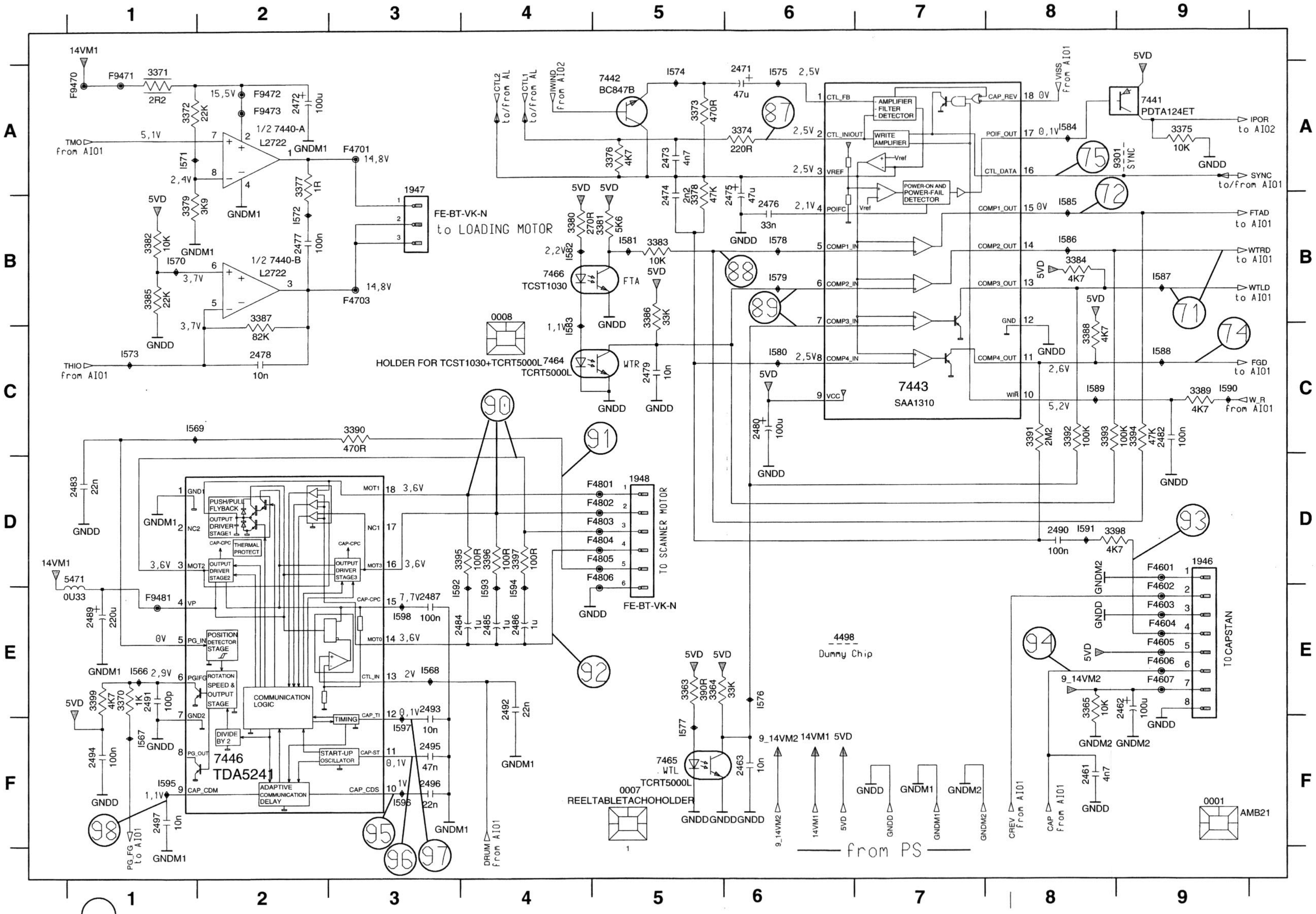


A: DC, 50mV/Div, 500us/Div
IC 7446 Pin 12



A: AC, 200mV/Div, 500us/Div
IC 7446 Pin 9

Deck Electronics (DE)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
14VM1
F9470
F9471
3371
2R2
3372 22K
15,5V
F9472
F9473
2472 100u
1/2 7440-A
L2722
TMO from AI01
5,1V
GNDM1
F4701
14,8V
I571
2,4V
3377 1R
5VD
3379 3K9
GNDM1
I572
2477 100n
1947
FE-BT-VK-N
to LOADING MOTOR
3382 10K
I570
1/2 7440-B
L2722
3,7V
3385 22K
14,8V
F4703
3387 82K
GNDD
THIO from AI01
I573
2478 10n
CTL2 to/from AL
CTL1 to/from AL
IWIND from AI02
7442 BC847B
I574
2471 47u
I575
2,5V
3373 470R
3376 4K7
2473 4n7
3374 220R
2474 2n2
3378 47K
2475 47u
2476 33n
2,1V
GNDD
5VD
3380 270R
3381 5K6
2,2V
I582
I581
3383 10K
7466 TCST1030
FTA
0008
HOLDER FOR TCST1030+TCRT5000L
1,1V
I583
3386 33K
7464 TCRT5000L
WTR
2479 10n
I578
I579
I580
2,5V
2480 100u
7443 SAA1310
CTL_FB
CTL_INOUT
VREF
POIFC
COMP1_IN
COMP2_IN
COMP3_IN
COMP4_IN
VCC
AMPLIFIER - FILTER - DETECTOR
WRITE AMPLIFIER
POWER-ON AND POWER-FAIL DETECTOR
CAP_REV
POIF_OUT
CTL_DATA
COMP1_OUT
COMP2_OUT
COMP3_OUT
GND
COMP4_OUT
WIR
VISS from AI01
0V
0,1V
I584
5VD
7441 PDTA124ET
IPOR to AI02
3375 10K
9301 SYNC
SYNC to/from AI01
I585
FTAD to AI01
I586
3384 4K7
WTRD to AI01
I587
WTLD to AI01
3388 4K7
I588
FGD to AI01
2,6V
I589
3389 4K7
I590
W_R from AI01
5,2V
3391 2M2
3392 100K
3393 100K
3394 47K
2482 100n
I569
3390 470R
2483 22n
7446 TDA5241
PUSH/PULL FLYBACK
OUTPUT DRIVER STAGE1
THERMAL PROTECT
OUTPUT DRIVER STAGE2
OUTPUT DRIVER STAGE3
POSITION DETECTOR STAGE
ROTATION SPEED & OUTPUT STAGE
COMMUNICATION LOGIC
TIMING
DIVIDE BY 2
START-UP OSCILLATOR
ADAPTIVE COMMUNICATION DELAY
MOT1
NC1
MOT3
CAP-CPC
MOT0
CTL_IN
CAP_TI
CAP-ST
CAP_CDS
GND1
NC2
MOT2
VP
PG_IN
PGIFG
GND2
PG_OUT
CAP_CDM
3,6V
7,7V
2487 100n
I598
2V
I568
0,1V
2493 10n
I597
2495 47n
I596
2496 22n
1V
14VM1
5471 0U33
F9481
2489 220u
0V
I566
2,9V
3399 4K7
3370 1K
2491 100p
I567
2494 100n
I595
1,1V
2497 10n
PG_FG to AI01
3395 100R
3396 100R
3397 100R
I592
I593
I594
2484 1u
2485 1u
2486 1u
F4801
F4802
F4803
F4804
F4805
F4806
1948
TO SCANNER MOTOR
2492 22n
DRUM from AI01
3363 390R
3364 33K
I577
I576
7465 WTL TCRT5000L
0007 REELTABLETACHOHOLDER
2463 10n
9_14VM2
14VM1
5VD
from PS
4498 Dummy Chip
2490 100n
I591
3398 4K7
1946
F4601
F4602
F4603
F4604
F4605
F4606
F4607
GNDM2
TO CAPSTAN
3365 10K
2462 100u
2461 4n7
CREV from AI01
CAP from AI01
0001 AMB21
90
91
92
93
94
95
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97
98
87
88
89
75
72
71
74

OSCILLOGRAMS

... V MEASURED IN PLAYBACK MODE

... V MEASURED IN RECORD MODE

0001	F9
0007	F5
0008	B4
1946	D9
1947	A3
1948	D5
2461	F8
2462	E9
2463	F6
2471	A6
2472	A2
2473	A5
2474	B5
2475	B6
2476	B6
2477	B2
2478	C2
2479	C5
2480	C6
2482	C9
2483	D1
2484	E4
2485	E4
2486	E4
2487	E3
2489	E1
2490	D8
2491	E1
2492	E4
2493	E3
2494	F1
2495	F3
2496	F3
2497	F1
3363	E5
3364	E5
3365	E8
3370	E1
3371	A1
3372	A1
3373	A5
3374	A6
3375	A9
3376	A5
3377	A2
3378	B5
3379	B1
3380	B4
3381	B5
3382	B1
3383	B5
3384	B8
3385	B1
3386	B5
3387	B2
3388	C8
3389	C9
3390	C3
3391	C8
3392	C8
3393	C8
3394	C9
3395	D4
3396	D4
3397	D4
3398	D8
3399	E1
4498	E6
5471	D1
7440-A	A2
7440-B	B2
7441	A9
7442	A5
7443	C7
7446	F2
7464	C4
7465	F5
7466	B4
9301	A8
F4601	D9
F4602	E9
F4603	E9
F4604	E9
F4605	E9
F4606	E9
F4607	E9
F4701	A3
F4703	B3
F4801	D5
F4802	D5
F4803	D5
F4804	D5
F4805	D5
F4806	D5
F9470	A1
F9471	A1
F9472	A2
F9473	A2
F9481	E1
I566	E1
I567	F1
I568	E3
I569	C1
I570	B1
I571	A1
I572	B2
I573	C1
I574	A5
I575	A6
I576	E6
I577	F5
I578	B6
I579	B6
I580	C6
I581	B5
I582	B4
I583	C4
I584	A8
I585	B8
I586	B8
I587	B9
I588	C9
I589	C8
I590	C9
I591	D8
I592	E3
I593	E4
I594	E4
I595	F1
I596	F3
I597	F3
I598	E3

Central / Deck Control 2 (AIO2)

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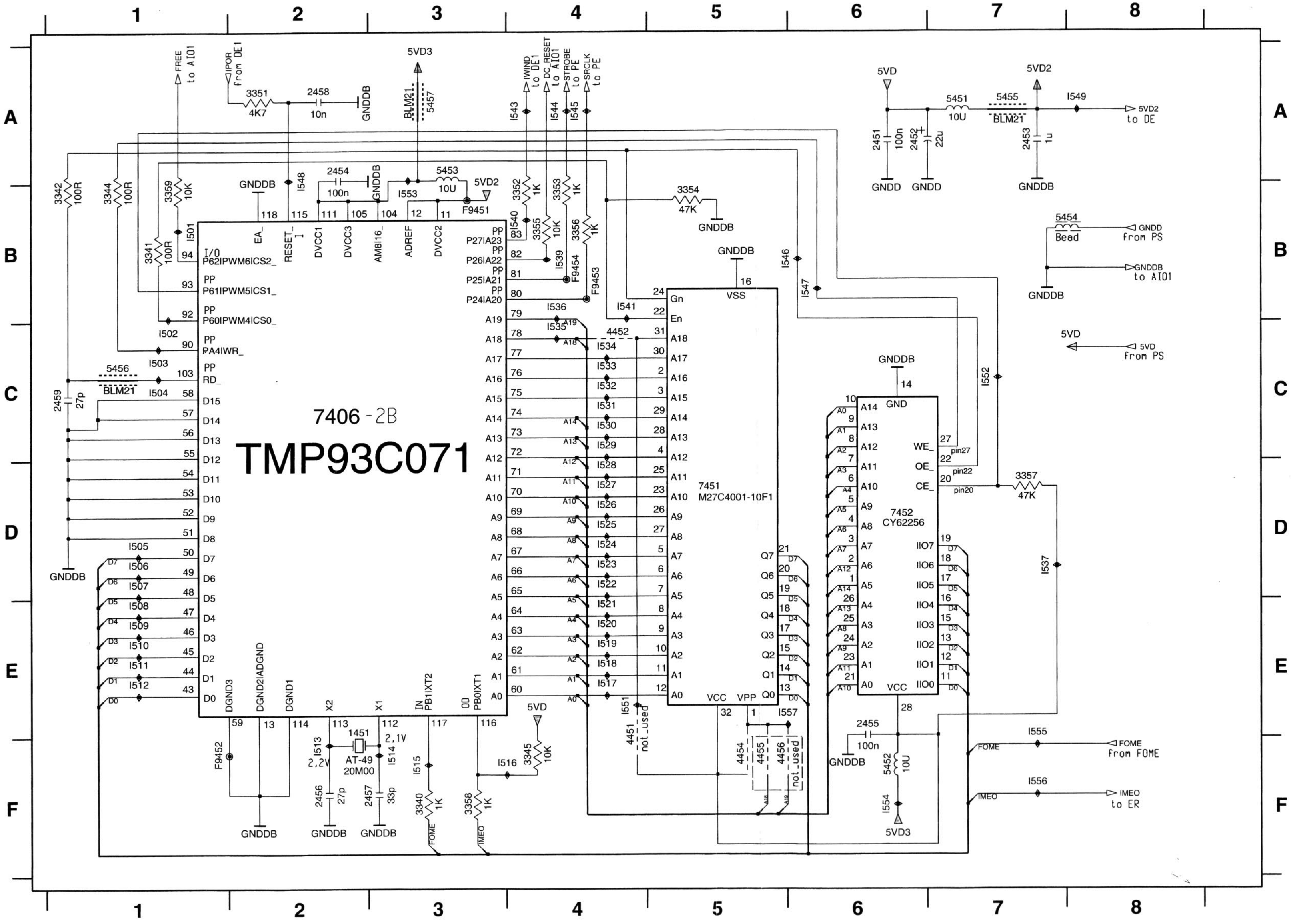
FV 3-20	FM-STEREO-MSP 3-23	ER 3-25	VS 3-29	VS-SEC 3-33	IO 3-35	AIO2 3-40	VPO 3-41	



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3
4
5
6
7
8
A
B
C
D
E
F
FREE to AIO1
IPOR From DE1
3351 4K7
2458 10n
GNDDB
5VD3
BLM21
5457
IWIND to DE1
DC_RESET to AIO1
STROBE to PE
SRCLK to PE
1543
1544
1545
3342 100R
3344 100R
3359 10K
1548
2454 100n
5453 10U
5VD2
1553
F9451
3352 1K
3353 1K
3355 10K
3356 1K
1540
1539
F9454
F9453
3354 47K
GNDDB
1501
3341 100R
1502
1503
5456 BLM21
1504
2459 27p
GNDDB
EA_
RESET_ I
DVCC1
DVCC3
AM8I16_
ADREF
DVCC2
I/O P62IPWM6ICS2_
PP P61IPWM5ICS1_
PP P60IPWM4ICS0_
PP PA4IWR_
PP RD_
D15
D14
D13
D12
D11
D10
D9
D8
D7
D6
D5
D4
D3
D2
D1
D0
PP P27IA23
PP P26IA22
PP P25IA21
PP P24IA20
A19
A18
A17
A16
A15
A14
A13
A12
A11
A10
A9
A8
A7
A6
A5
A4
A3
A2
A1
A0
7406 - 2B
TMP93C071
DGND3
DGND2IADGND
DGND1
X2
X1
IN PB1IXT2
OD PB0IXT1
F9452
1513
2,2V
1451
AT-49
20M00
1514
2,1V
2456 27p
2457 33p
GNDDB
1515
3340 1K
3358 1K
FOME
IMEO
1516
3345 10K
5VD
1505
1506
1507
1508
1509
1510
1511
1512
1536
1535
4452
1534
1533
1532
1531
1530
1529
1528
1527
1526
1525
1524
1523
1522
1521
1520
1519
1518
1517
1541
1551
4451 not_used
4454
4455
4456 not_used
1557
Gn
En
VSS
7451
M27C4001-10F1
Q7
Q6
Q5
Q4
Q3
Q2
Q1
Q0
VCC
VPP
1546
1547
1552
5VD
2451 100n
2452 22u
GNDD
5451 10U
5455 BLM21
2453 1u
1549
5VD2 to DE
5454 Bead
GNDD from PS
GNDDB to AIO1
5VD from PS
GNDDB
GND
7452
CY62256
A14
A13
A12
A11
A10
A9
A8
A7
A6
A5
A4
A3
A2
A1
A0
WE_
OE_
CE_
pin27
pin22
pin20
3357 47K
IIO7
IIO6
IIO5
IIO4
IIO3
IIO2
IIO1
IIO0
1537
2455 100n
5452 10U
1554
5VD3
1555
FOME From FOME
1556
IMEO to ER

Part	Location
1451	E2
2451	A6
2452	A6
2453	A7
2454	A2
2455	E6
2456	F2
2457	F3
2458	A2
2459	C1
3340	F3
3341	B1
3342	B1
3344	B1
3345	F4
3351	A2
3352	B4
3353	B4
3354	B5
3355	B4
3356	B4
3357	D7
3358	F3
3359	B1
4451	E4
4452	C4
4454	F5
4455	F5
4456	F5
5451	A7
5452	F6
5453	A3
5454	B8
5455	A7
5456	C1
5457	A3
7406	C2
7451	D5
7452	D6
F9451	B3
F9452	F1
F9453	B4
F9454	B4
I501	B1
I502	C1
I503	C1
I504	C1
I505	D1
I506	D1
I507	D1
I508	E1
I509	E1
I510	E1
I511	E1
I512	E1
I513	F2
I514	F3
I515	F3
I516	F4
I517	E4
I518	E4
I519	E4
I520	E4
I521	E4
I522	D4
I523	D4
I524	D4
I525	D4
I526	D4
I527	D4
I528	D4
I529	C4
I530	C4
I531	C4
I532	C4
I533	C4
I534	C4
I535	C4
I536	B4
I537	D7
I539	B4
I540	B4
I541	B4
I543	A4
I544	A4
I545	A4
I546	B5
I547	B6
I548	A2
I549	A8
I551	E4
I552	C7
I553	B3
I554	F6
I555	E7
I556	F7
I557	E6

OSD Part (VPO)

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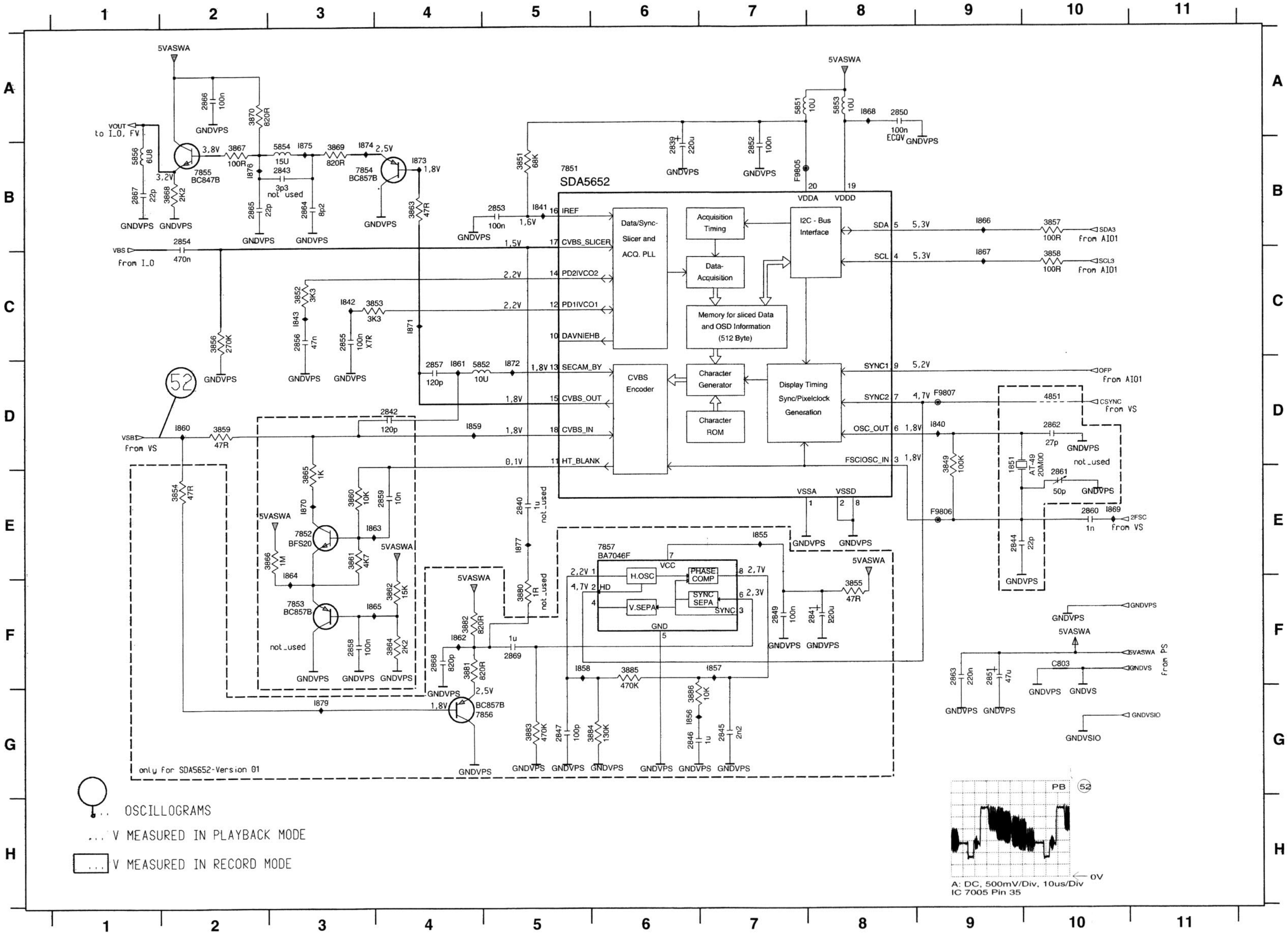
FV 3-20	FM-STEREO-MSP 3-23	ER 3-25	VS 3-29	VS-SEC 3-33	IO 3-35	AIO2 3-40	VPO 3-41	3-42


5VASWA
VOUT to I_O, FV
VBS from I_O
VSBT from VS
7851 SDA5652
IREF
CVBS_SLICER
PD2IVCO2
PD1IVCO1
DAVNIEHB
SECAM_BY
CVBS_OUT
CVBS_IN
HT_BLANK
Data/Sync-Slicer and ACQ. PLL
Acquisition Timing
Data-Acquisition
Memory for sliced Data and OSD Information (512 Byte)
Character Generator
Character ROM
CVBS Encoder
I2C - Bus Interface
Display Timing Sync/Pixelclock Generation
VDDA
VDDD
VSSA
VSSD
SDA
SCL
SYNC1
SYNC2
OSC_OUT
FSCIOSC_IN
SDA3 from AIO1
SCL3 from AIO1
OFP from AIO1
CSYNC from VS
2FSC from VS
7857 BA7046F
H.OSC
PHASE COMP
SYNC SEPA
V.SEPA
VCC
GND
HD
7852 BFS20
7853 BC857B
7855 BC847B
7854 BC857B
7856 BC857B
1851 AT-49 20M00
GNDVPS
GNDVS
GNDVSIO
C803
from PS
not_used
only for SDA5652-Version 01
52
OSCILLOGRAMS
... V MEASURED IN PLAYBACK MODE
... V MEASURED IN RECORD MODE
PB 52
0V
A: DC, 500mV/Div, 10us/Div
IC 7005 Pin 35
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H

1851	D9
2839	B6
2840	E5
2841	F8
2842	D4
2843	B3
2844	E9
2845	G7
2846	G6
2847	G5
2849	F7
2850	A8
2851	F9
2852	B7
2853	B5
2854	B2
2855	C3
2856	C3
2857	D4
2858	F3
2859	E4
2860	E10
2861	E10
2862	D10
2863	F9
2864	B3
2865	B2
2866	A2
2867	B1
2868	F4
2869	F5
3849	D9
3851	B5
3852	C3
3853	C3
3854	E2
3855	F8
3856	C2
3857	B10
3858	C10
3859	D2
3860	E3
3861	E3
3862	F4
3863	B4
3864	F4
3865	E3
3866	E3
3867	B2
3868	B2
3869	B3
3870	A2
3880	F5
3881	F4
3882	F4
3883	G5
3884	G6
3885	F6
3886	G6
4851	D10
5851	A7
5852	D4
5853	A8
5854	B3
5856	B1
7851	B5
7852	E3
7853	F3
7854	B3
7855	B2
7856	G4
7857	E6
C803	F10
F9805	B7
F9806	E9
F9807	D9
I840	D9
I841	B5
I842	C3
I843	C3
I855	E7
I856	G6
I857	F7
I858	F5
I859	D4
I860	D2
I861	D4
I862	F4
I863	E3
I864	E3
I865	F3
I866	B9
I867	C9
I868	A8
I869	E10
I870	E3
I871	C4
I872	D5
I873	B4
I874	B3
I875	B3
I876	B2
I877	E5
I879	G3

Follow me part (FOME, VPS, PE)

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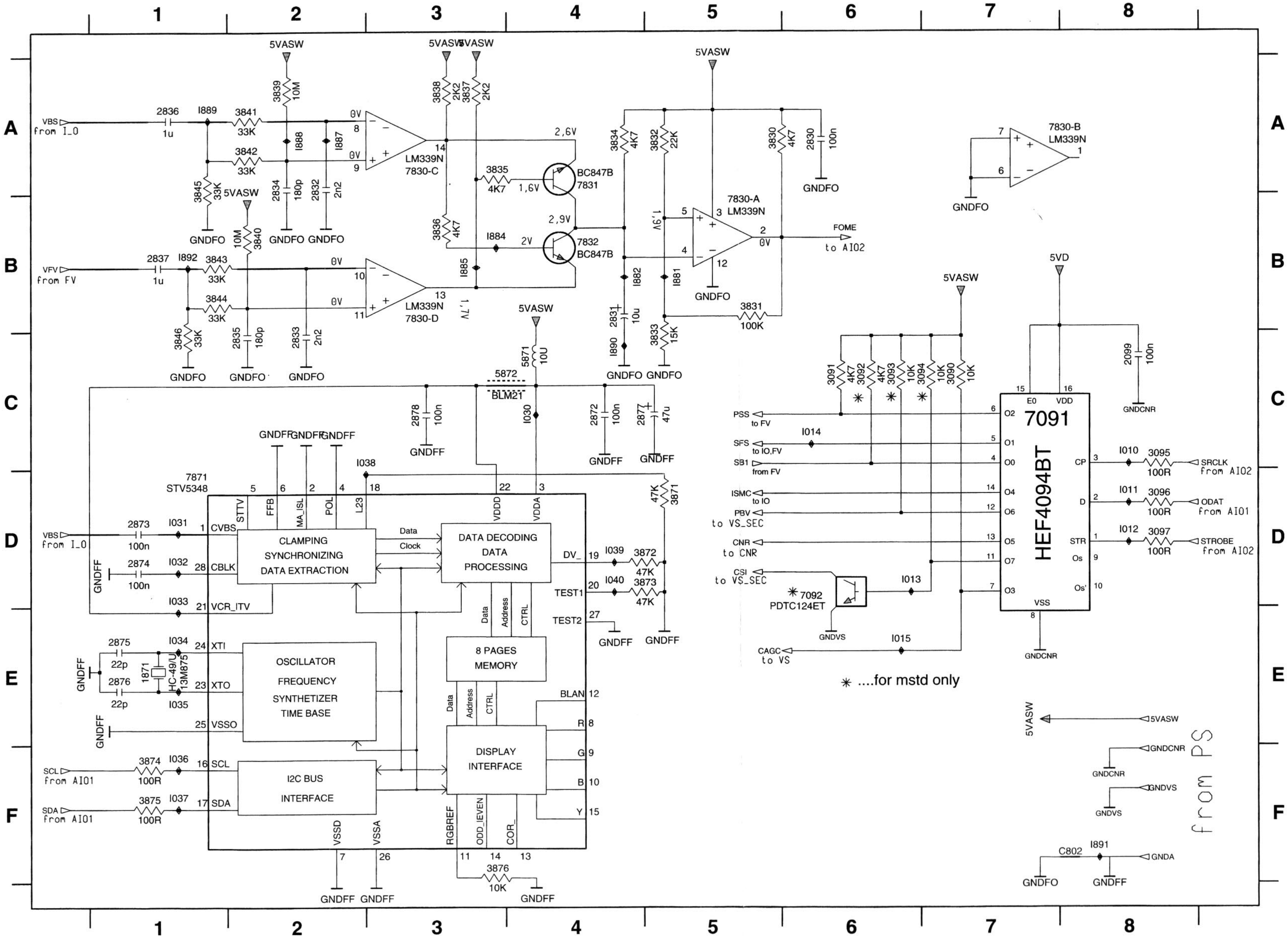
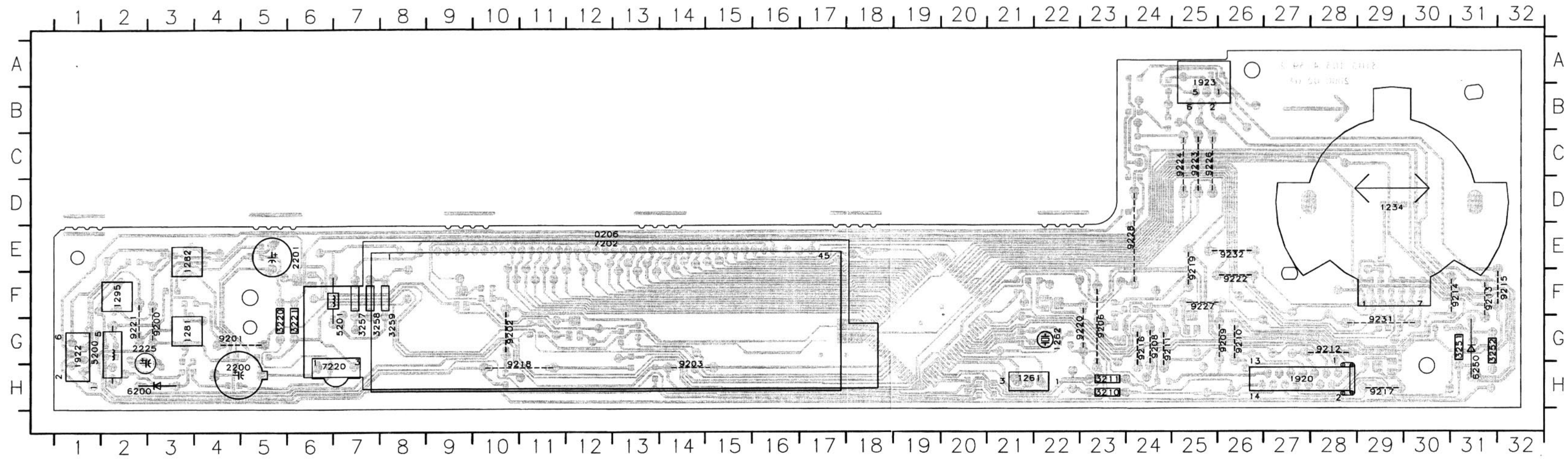
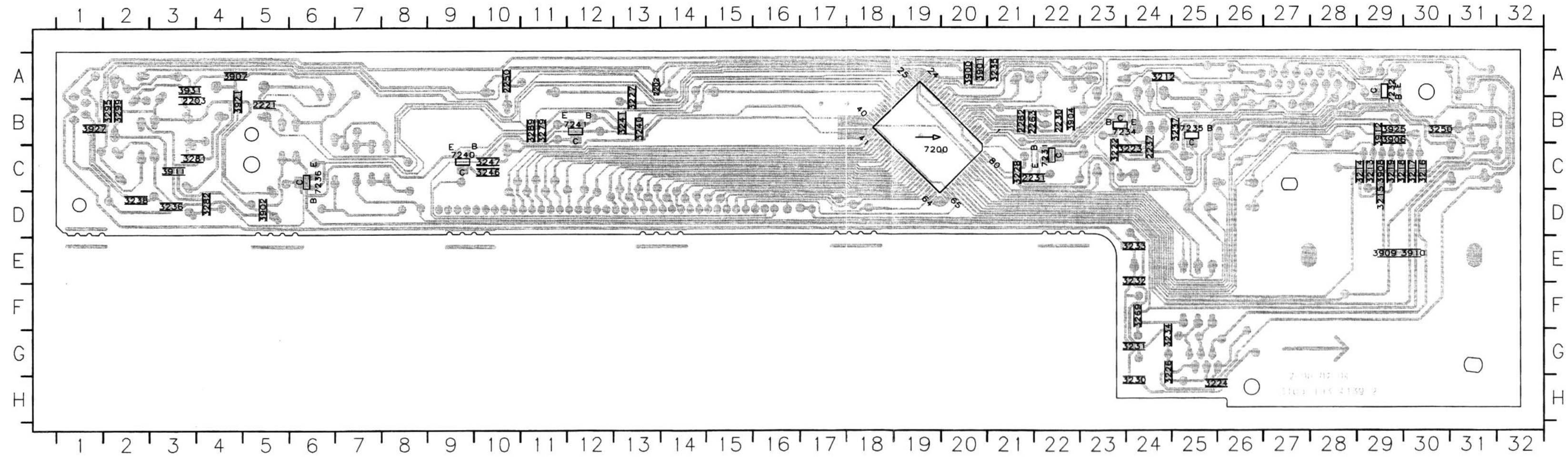

1
2
3
4
5
6
7
8
A
B
C
D
E
F
VBS from I_0
VFV from FV
2836 1u
2837 1u
I889
I892
3841 33K
3842 33K
3843 33K
3844 33K
3845 33K
3846 33K
5VASW
3839 10M
3840 10M
I888
I887
2834 180p
2832 2n2
2835 180p
2833 2n2
GNDFO
0V
8
9
10
11
14
13
LM339N
7830-C
7830-D
3838 2K2
3837 2K2
3836 4K7
3835 4K7
1,6V
2,6V
2,9V
2V
BC847B
7831
7832
I884
I885
1,7V
3834 4K7
3832 22K
3830 4K7
2830 100n
1,9V
7830-A LM339N
5
4
3
2
12
0V
FOME to AI02
I882
I881
2831 10u
I890
3833 15K
3831 100K
7830-B LM339N
7
6
1
5VASW
5871 10U
5872 BLM21
I030
2878 100n
2872 100n
2877 47u
GNDFF
I038
7871 STV5348
STTV
FFB
MA_ISL
POL
L23
VDDD
VDDA
22
18
CVBS
CBLK
VCR_ITV
CLAMPING SYNCHRONIZING DATA EXTRACTION
Data
Clock
DATA DECODING DATA PROCESSING
DV_
TEST1
TEST2
19
20
27
I039
I040
3872 47K
3873 47K
3871 47K
2873 100n
2874 100n
I031
I032
I033
1
28
21
2875 22p
2876 22p
1871 HC-49/U 13M875
I034
I035
24 XTI
23 XTO
25 VSSO
OSCILLATOR FREQUENCY SYNTHETIZER TIME BASE
8 PAGES MEMORY
Data
Address
CTRL
DISPLAY INTERFACE
BLAN 12
R 8
G 9
B 10
Y 15
SCL from AI01
SDA from AI01
3874 100R
3875 100R
I036
I037
16 SCL
17 SDA
I2C BUS INTERFACE
VSSD
VSSA
7
26
RGBREF
ODD_IEVEN
COR_
11
14
13
3876 10K
5VASW
3091 4K7
3092 4K7
3093 10K
3094 10K
3090 10K
PSS to FV
SFS to IO,FV
SB1 from FV
ISMC to IO
PBV to VS_SEC
CNR to CNR
CSI to VS_SEC
CAGC to VS
I014
I013
I015
*7092 PDTC124ET
GNDVS
5VD
7091 HEF4094BT
15 E0
16 VDD
O2
O1
O0
O4
O6
O5
O7
O3
CP
D
STR
Os
Os'
VSS
2099 100n
GNDCNR
I010 3095 100R SRCLK from AI02
I011 3096 100R ODAT from AI01
I012 3097 100R STROBE from AI02
* ....for mstd only
5VASW
GNDCNR
GNDVS
from PS
C802
I891
GNDA
GNDFO
GNDFF

1871	E1
2099	C8
2830	A6
2831	B4
2832	A2
2833	C2
2834	A2
2835	C2
2836	A1
2837	B1
2872	C4
2873	D1
2874	D1
2875	E1
2876	E1
2877	C4
2878	C3
3090	C7
3091	C6
3092	C6
3093	C6
3094	C7
3095	C8
3096	D8
3097	D8
3830	A5
3831	B5
3832	A5
3833	C5
3834	A4
3835	A3
3836	B3
3837	A3
3838	A3
3839	A2
3840	B2
3841	A2
3842	A2
3843	B1
3844	B1
3845	A1
3846	C1
3871	D5
3872	D5
3873	D5
3874	F1
3875	F1
3876	F3
5871	C4
5872	C3
7091	C7
7092	D6
7830-A	B5
7830-B	A7
7830-C	A3
7830-D	B3
7831	A4
7832	B4
7871	D1
C802	F8
I010	C8
I011	D8
I012	D8
I013	D6
I014	C6
I015	E6
I030	C4
I031	D1
I032	D1
I033	D1
I034	E1
I035	E1
I036	F1
I037	F1
I038	C2
I039	D4
I040	D4
I881	B5
I882	B4
I884	B3
I885	B3
I887	A2
I888	A2
I889	A1
I890	C4
I891	F8
I892	B1

Display Control ADCP18 (DC)


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
A
B
C
D
E
F
G
H
1923
1234
0206
7202
1282
1295
1281
1922
5200
9221
9200
2225
6200
2200
2201
9201
3220
3221
5201
3257
3258
3259
7220
9202
9218
9203
45
1261
1262
3211
3210
9228
9224
9223
9226
9232
9222
9219
9227
9220
9206
9216
9208
9211
9209
9210
9212
9231
9214
9213
9215
1920
9217
3251
3252
6250

0206	E12
1234	D29
1261	H21
1262	G22
1281	G3
1282	E3
1295	F2
1920	H27
1922	G1
1923	A25
2200	H4
2201	E6
2225	G2
3210	H23
3211	H23
3220	G5
3221	G6
3251	G31
3252	G31
3257	G7
3258	G7
3259	G8
5200	G1
5201	G7
6200	H2
6250	H31
7202	E12
7220	H7
9200	G3
9201	G4
9202	G10
9203	H14
9206	G23
9208	G24
9209	G26
9210	G26
9211	G24
9212	G28
9213	F31
9214	F31
9215	F32
9216	G24
9217	H29
9218	H10
9219	E25
9220	G22
9221	G2
9222	F26
9223	C25
9224	C25
9226	C25
9227	F25
9228	E24
9231	G29
9232	E26


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
A
B
C
D
E
F
G
H
7200
25
24
40
41
80
64
65
3927
3931
2203
3907
3921
2221
3281
3911
3238
3236
3282
3902
7236
7240
3247
3246
2250
7241
3227
2202
3900
3901
3235
7234
7235
3212
7232
3925
3906
3250
3909
3910
3233
3232
3269
3231
3226
3230
3224

2202	A13
2203	B3
2221	B5
2230	B22
2231	C21
2237	C24
2250	A10
2262	B21
2263	B21
3212	A24
3213	C29
3214	C29
3215	D29
3216	C30
3217	C30
3218	C29
3219	C29
3222	C23
3223	C24
3224	H25
3226	G24
3227	B13
3228	C21
3230	H24
3231	G24
3232	E24
3233	E24
3235	A21
3236	D3
3237	B25
3238	D2
3240	B13
3241	B13
3246	C10
3247	C10
3250	B30
3269	F24
3279	B11
3281	C3
3282	D4
3289	B11
3295	B2
3299	B2
3900	A20
3901	A20
3902	D5
3904	B22
3906	B29
3907	A4
3908	C29
3909	E29
3910	E30
3911	C3
3912	B29
3921	B4
3925	B29
3927	B1
3931	A3
7200	C19
7231	C22
7232	A29
7234	B23
7235	B25
7236	C6
7240	C9
7241	B12

Display Control ADCP18 (DC)

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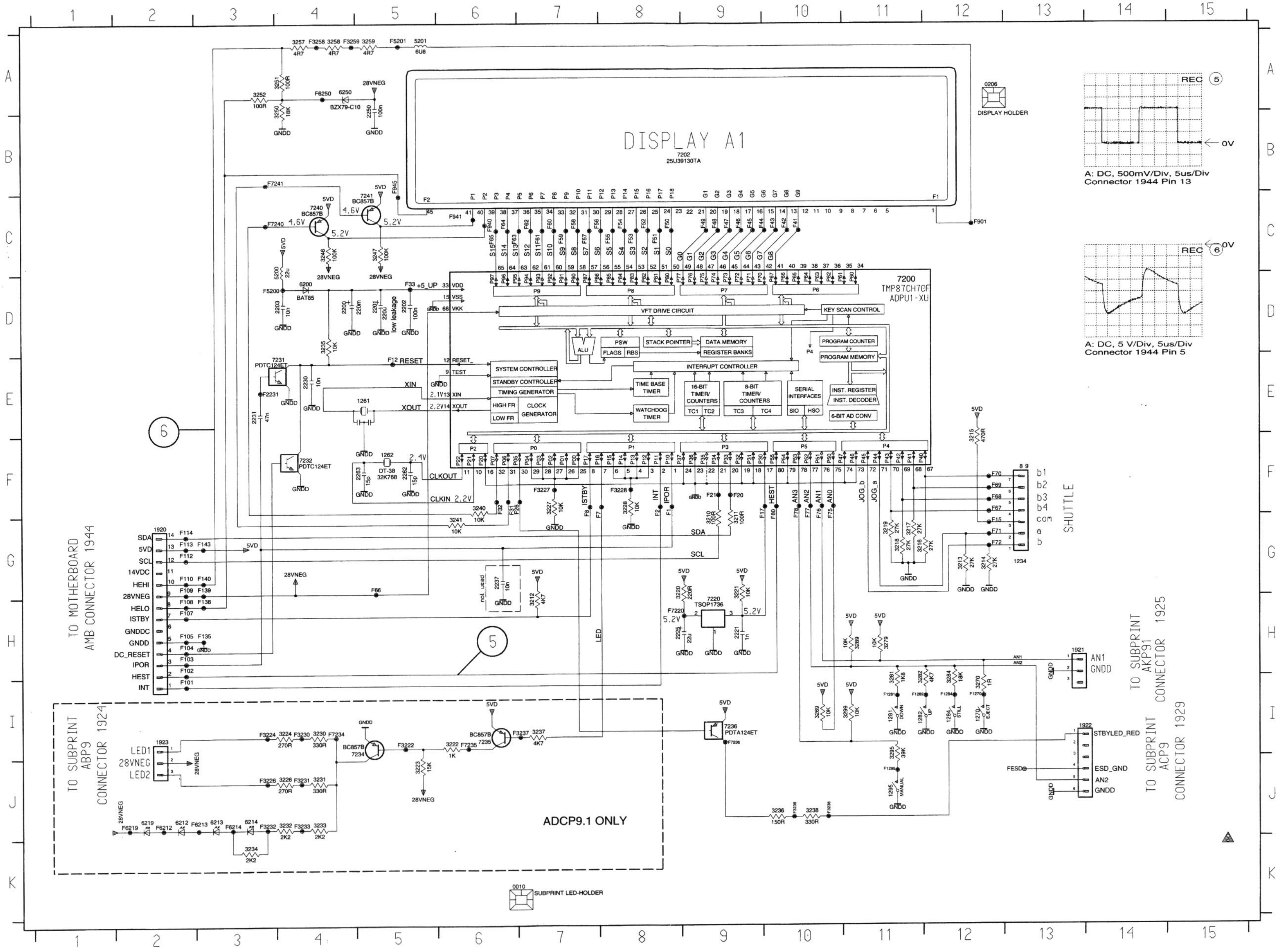

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A
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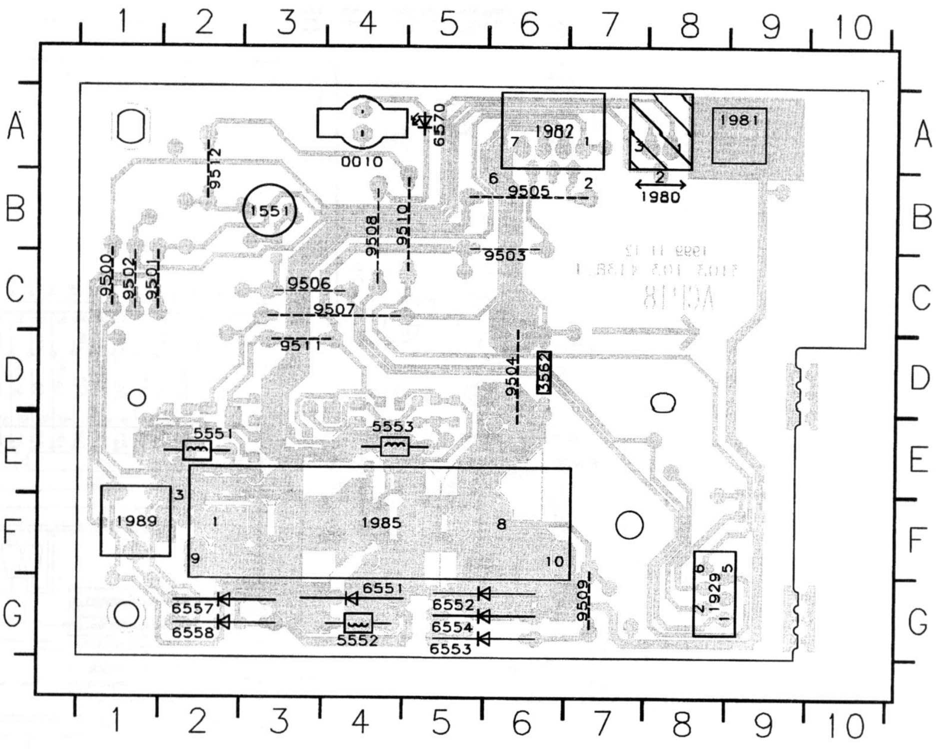
D
E
F
G
H
I
J
K
DISPLAY A1
7202
25U39130TA
0206
DISPLAY HOLDER
7200
TMP87CH70F
ADPU1-XU
VFT DRIVE CIRCUIT
KEY SCAN CONTROL
PSW
FLAGS
RBS
ALU
STACK POINTER
DATA MEMORY
REGISTER BANKS
PROGRAM COUNTER
PROGRAM MEMORY
INTERRUPT CONTROLLER
SYSTEM CONTROLLER
STANDBY CONTROLLER
TIMING GENERATOR
HIGH FR
LOW FR
CLOCK GENERATOR
TIME BASE TIMER
WATCHDOG TIMER
16-BIT TIMER/ COUNTERS
8-BIT TIMER/ COUNTERS
SERIAL INTERFACES
INST. REGISTER
INST. DECODER
6-BIT AD CONV
TC1
TC2
TC3
TC4
SIO
HSO
P0
P1
P2
P3
P4
P5
P6
P7
P8
P9
RESET_
TEST
XIN
XOUT
+5_UP
VDD
VSS
VKK
F12 RESET
CLKOUT
CLKIN 2.2V
1261
1262
DT-38
32K768
7231
PDTC124ET
7232
PDTC124ET
7240
BC857B
7241
BC857B
4.6V
5.2V
5VD
28VNEG
GNDD
6250
BZX79-C10
6200
BAT85
REC ⑤
0V
A: DC, 500mV/Div, 5us/Div
Connector 1944 Pin 13
REC ⑥
A: DC, 5 V/Div, 5us/Div
Connector 1944 Pin 5
⑥
⑤
1920
SDA
5VD
SCL
14VDC
HEHI
28VNEG
HELO
ISTBY
GNDDC
GNDD
DC_RESET
IPOR
HEST
INT
TO MOTHERBOARD
AMB CONNECTOR 1944
SHUTTLE
b1
b2
b3
b4
com
a
b
1234
JOG_b
JOG_a
AN0
AN1
AN2
AN3
HEST
IPOR
INT
ISTBY
LED
7220
TSOP1736
1921
AN1
GNDD
TO SUBPRINT
AKP91
CONNECTOR 1925
1922
STBYLED_RED
ESD_GND
AN2
GNDD
FESD
TO SUBPRINT
ACP9
CONNECTOR 1929
7236
PDTA124ET
1281
DOWN
1282
UP
1284
STILL
1270
EJECT
1295
MANUAL
1923
LED1
28VNEG
LED2
TO SUBPRINT
ABP9
CONNECTOR 1924
7234
BC857B
7235
BC857B
ADCP9.1 ONLY
0010
SUBPRINT LED-HOLDER

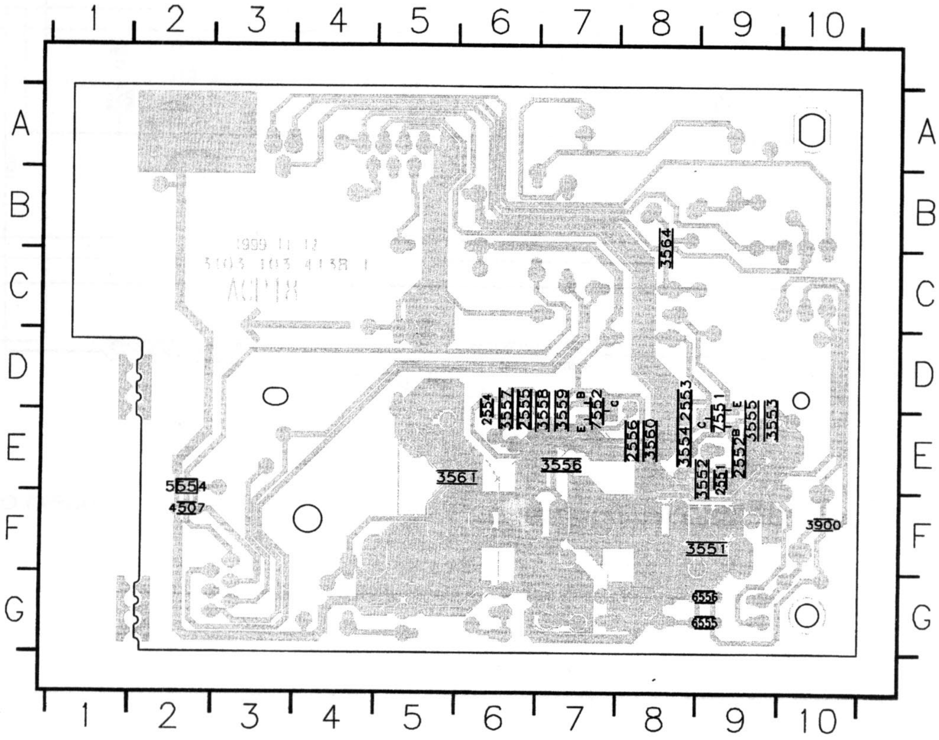
F1	F8
F2	F8
F7	F8
F8	F7
F12	E5
F15	G12
F17	F10
F20	F9
F21	F9
F26	F7
F31	F6
F32	F6
F33	D5
F41	C10
F42	C10
F43	C10
F44	C10
F45	C9
F46	C9
F47	C9
F48	C9
F49	C9
F50	C8
F51	C8
F52	C8
F53	C8
F54	C8
F55	C8
F56	C7
F57	C7
F58	C7
F59	C7
F60	C7
F61	C7
F62	C7
F63	C6
F64	C6
F65	C6
F66	G5
F67	F12
F68	F12
F69	F12
F70	F12
F71	G12
F72	G12
F75	F10
F76	F10
F77	F10
F78	F10
F80	F10
0010	K6
0206	A12
1234	G13
1261	E5
1262	F5
1270	I12
1281	I11
1282	I11
1284	I12
1295	J11
1920	G2
1921	H13
1922	I13
1923	I2
2200	D4
2201	D5
2202	D5
2203	D4
2221	H9
2225	H8
2230	E4
2231	E3
2237	G6
2250	A5
2262	F5
2263	F5
3210	G9
3211	G9
3212	H7
3213	G12
3214	G12
3215	F12
3216	G11
3217	G11
3218	G11
3219	G11
3220	G8
3221	G9
3222	I6
3223	J5
3224	I4
3226	J4
3227	F7
3228	F8
3230	I4
3231	J4
3232	J4
3233	J4
3234	K3
3235	D4
3236	J10
3237	I7
3238	J10
3240	F6
3241	G6
3246	C4
3247	C5
3250	A4
3251	A4
3252	A3
3257	A4
3258	A4
3259	A5
3269	I10
3270	I12
3279	H11
3281	I11
3282	I11
3284	I12
3289	H11
3295	I11
3299	I11
5200	C4
5201	A5
6200	D4
6212	J2
6213	J3
6214	J3
6219	J2
6250	A4
7200	D11
7202	B9
7220	H9
7231	E3
7232	F4
7234	I5
7235	I6
7236	I9
7240	C4
7241	B5
F101	I2
F102	H2
F103	H2
F104	H2
F105	H2
F107	H2
F108	H2
F109	G2
F110	G2
F112	G2
F113	G2
F114	G2
F1270	I12
F1281	I11
F1282	I11
F1284	I12
F1295	J11
F135	H3
F138	H3
F139	G3
F140	G3
F143	G3
F2231	E3
F3222	I5
F3224	I3
F3226	J3
F3227	F7
F3228	F8
F3230	I4
F3231	J4
F3232	J3
F3233	J4
F3236	J10
F3237	I7
F3238	J10
F3258	A4
F3259	A4
F5200	D3
F5201	A5
F6212	J2
F6213	J3
F6214	J3
F6219	J2
F6250	A4
F7220	H8
F7234	I4
F7235	I6
F7236	I9
F7240	C4
F7241	B4
F901	C12
F940	C6
F941	C6
F945	B5
FESD	J13

Connector PCB ACP18

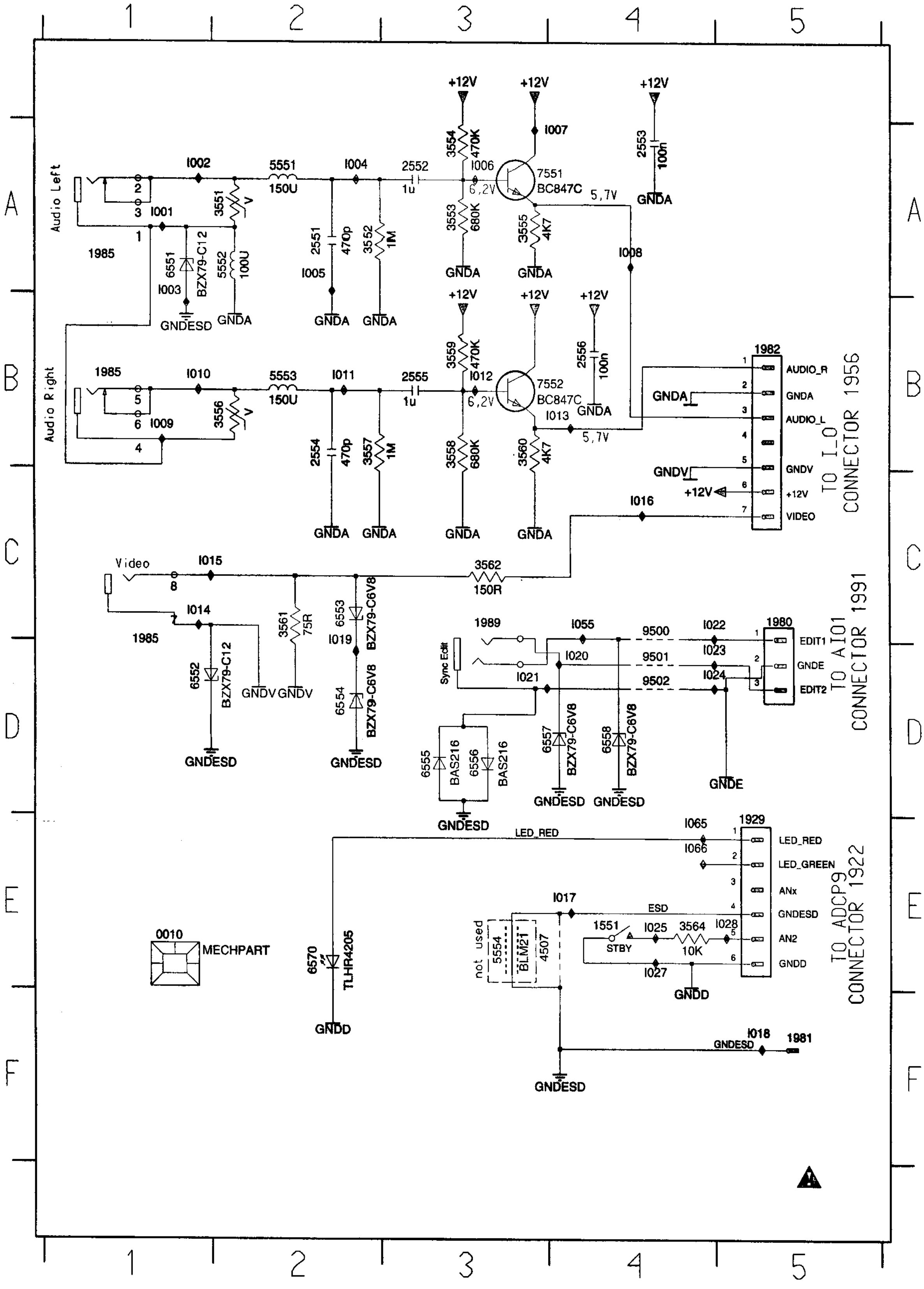
0010	A4	1981	A8	3562	D6	6551	G4	6557	G2	9501	C1	9505	B6	9509	G7
1551	B3	1982	A6	5551	E2	6552	G5	6558	G2	9502	C1	9506	C3	9510	B4
1929	G8	1985	F4	5552	G4	6553	G5	6570	A4	9503	C6	9507	C4	9511	D3
1980	A8	1989	F1	5553	E4	6554	G5	9500	C1	9504	D6	9508	B4	9512	A2


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
0010
6570
1982
7
1
6
2
1980
3
1981
9512
1551
9505
9508
9510
9503
9500
9502
9501
9506
9507
9511
9504
3562
5553
5551
1989
1985
8
9
10
1929
9509
6551
6557
6558
5552
6552
6554
6553
1999 11 12
3103 103 4138.1
ACP18

2551	E9	2555	D6	3553	E9	3557	D6	3561	E6	5554	E2	7552	D7
2552	E9	2556	E8	3554	E8	3558	D7	3564	B8	6555	G9		
2553	D8	3551	F9	3555	E9	3559	D7	3900	F10	6556	G9		
2554	D6	3552	E9	3556	E7	3560	E8	4507	F2	7551	E9		


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
1999 11 12
3103 103 4138.1
ACP18
3564
2554
3557
2555
3558
3559
7552
2556
3560
3554
2553
7551
3555
3553
2552
3552
2551
3561
3556
5554
4507
3900
3551
6556
6555

Connector PCB ACP18


1
2
3
4
5
A
B
C
D
E
F
Audio Left
Audio Right
Video
1985
I001
I002
I003
I004
I005
I006
I007
I008
I009
I010
I011
I012
I013
I014
I015
I016
I017
I018
I019
I020
I021
I022
I023
I024
I025
I027
I028
I055
I065
I066
+12V
5551
150U
5552
100U
5553
150U
2551
470p
2552
1u
2553
100n
2554
470p
2555
1u
2556
100n
3551
3552
1M
3553
680K
3554
470K
3555
4K7
3556
3557
1M
3558
680K
3559
470K
3560
4K7
3561
75R
3562
150R
3564
10K
6551
BZX79-C12
6552
BZX79-C12
6553
BZX79-C6V8
6554
BZX79-C6V8
6555
BAS216
6556
BAS216
6557
BZX79-C6V8
6558
BZX79-C6V8
6570
TLHR4205
7551
BC847C
7552
BC847C
6,2V
5,7V
GNDA
GNDV
GNDESD
GNDE
GNDD
1982
AUDIO_R
GNDA
AUDIO_L
GNDV
+12V
VIDEO
TO I_O CONNECTOR 1956
1989
Sync Edit
9500
9501
9502
1980
EDIT1
GNDE
EDIT2
TO AI01 CONNECTOR 1991
1929
LED_RED
LED_GREEN
ANx
GNDESD
AN2
GNDD
ESD
TO ADCP9 CONNECTOR 1922
1551
STBY
not used
5554
BLM21
4507
1981
0010
MECHPART

0010	E1
1551	E4
1929	E5
1980	C5
1981	F5
1982	B5
1985	A1
1985	B1
1985	C1
1989	C3
2551	A2
2552	A3
2553	A4
2554	B2
2555	B3
2556	B4
3551	A2
3552	A2
3553	A3
3554	A3
3555	A3
3556	B2
3557	B2
3558	B3
3559	B3
3560	B3
3561	C2
3562	C3
3564	E4
4507	E3
5551	A2
5552	A2
5553	B2
5554	E3
6551	A1
6552	D1
6553	C2
6554	D2
6555	D3
6556	D3
6557	D4
6558	D4
6570	E2
7551	A3
7552	B3
9500	C4
9501	D4
9502	D4
I001	A1
I002	A1
I003	A1
I004	A2
I005	A2
I006	A3
I007	A4
I008	A4
I009	B1
I010	B1
I011	B2
I012	B3
I013	B4
I014	C1
I015	C1
I016	C4
I017	E4
I018	F5
I019	C2
I020	D4
I021	D3
I022	C4
I023	D4
I024	D4
I025	E4
I027	E4
I028	E5
I055	C4
I065	E4
I066	E4

Engineer's remarks

4. DRIVE ASSEMBLY

This tape deck has three motors; one providing precision drive for the scanner unit; the second providing direct drive for the capstan and belt drive for the reel tables; the third motor drives the lift and tape threading/dethreading operations.

Special features are:

Quick start
Short winding time
Automatic cleaning of video heads by cleaning roller

To obtain a high repair standard we have developped a range of service kit's. These kit's covers the spare parts which are engaged together.
The tape deck's sensors are located on the motherboard underneath the tape deck, and included in its circuitry, lay out and parts list.

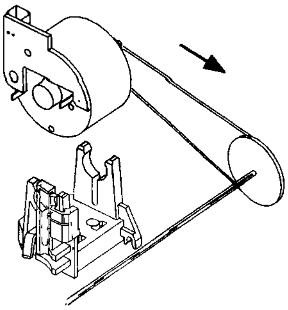
4.1 Deck parts replacement

The procedure for the removal and refitting of the following parts is described; only the lift, the scanner, the capstan motor and the A/C head are fixed by screws.
All the other deck assembly parts are held only by snap hooks.

For the replacement of parts on the underside of the tape deck, remove the tape deck from the motherboard.

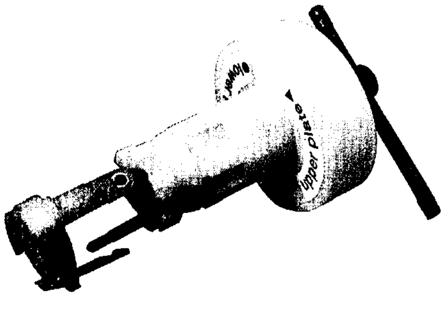
Manual extraction of cassette:
If, after the Eject button has been pressed, the drive does not unthread and eject the cassette, the dethreading/eject operation can also be carried out manually by turning the wheel at the rear of the threading motor.

fig. 1

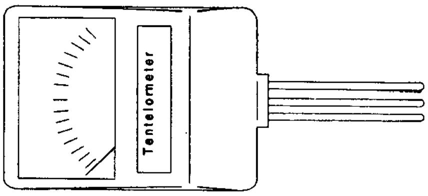


IMPORTANT:
After each repair has been carried out in the drive assembly, the first operation after repairing must be to bring the cassette compartment into „eject“ position by hand.

Auxiliary tools for deck adjustment:

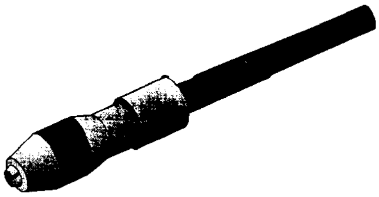


Tool for removing the head disc 4822 395 90977

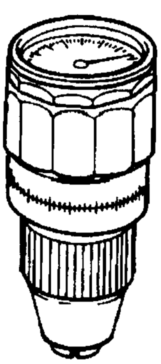


Tentelometer 4822 395 90584

Tool for tapetension adjustment 4822 395 50188

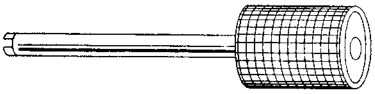


Handle 4822 256 90493



Torquemeter:

600 gf-cm 4822 395 90232
90 gf-cm 4822395 80196



Post adjustment screwdriver 4822 395 50275

Testcassette 4822 397 30103

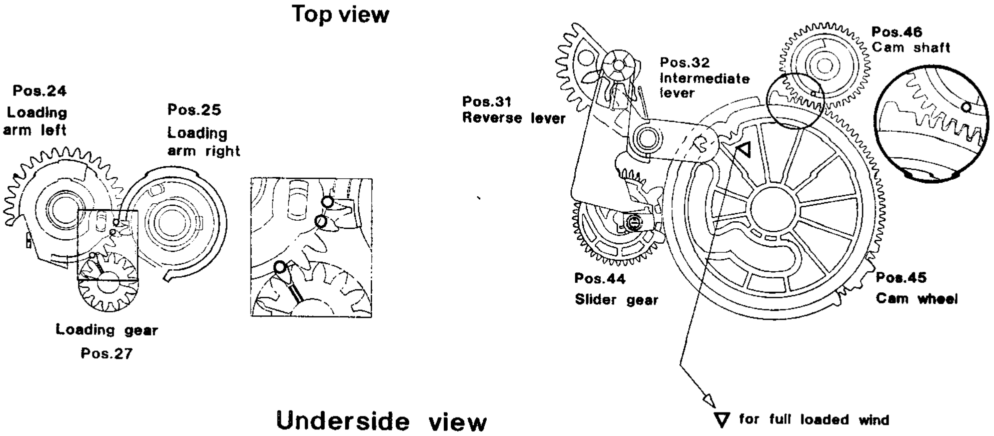
Nylon gloves 5322 395 94022

4.1.1 Deck lay out diagram

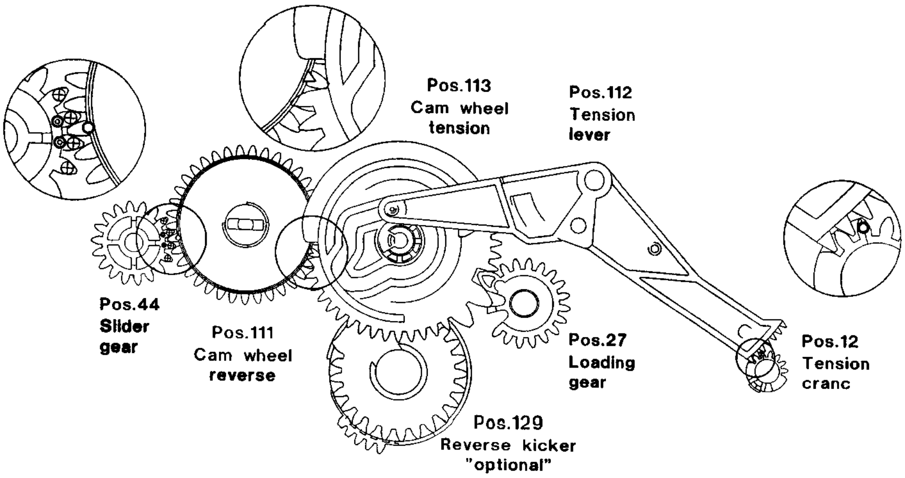
Deck in position „threaded out".

The following diagrams indicate the relative position of the gearwheels and levers when the deck is in the threaded out (cassette-compartment down) position.

Top view


Pos.24
Loading
arm left
Pos.25
Loading
arm right
Loading gear
Pos.27
Pos.31
Reverse lever
Pos.32
Intermediate
lever
Pos.46
Cam shaft
Pos.44
Slider gear
Pos.45
Cam wheel
∇ for full loaded wind

Underside view


Pos.113
Cam wheel
tension
Pos.112
Tension
lever
Pos.44
Slider
gear
Pos.111
Cam wheel
reverse
Pos.27
Loading
gear
Pos.12
Tension
cranc
Pos.129
Reverse kicker
"optional"

4.1.2 The Lift

Refitting the lift compartment:

Ensure the lift compartment is down and gear A is rotated one click stop anticlockwise from the down position.

The removal and refitting of the lift can be carried out in all deck positions with the exception of „eject" (ensure that gears 103/105 are free and if present the cassette loader gear 2 pos.105 is positioned to the rear).

To remove the lift:

Free the holding bracket (Fig. 2) by rotating it up and back from the upper end.

Unscrew the 4 screws on the underside of the deck.

Carefully remove the lift vertically, noting the position of the record protect operating lever.

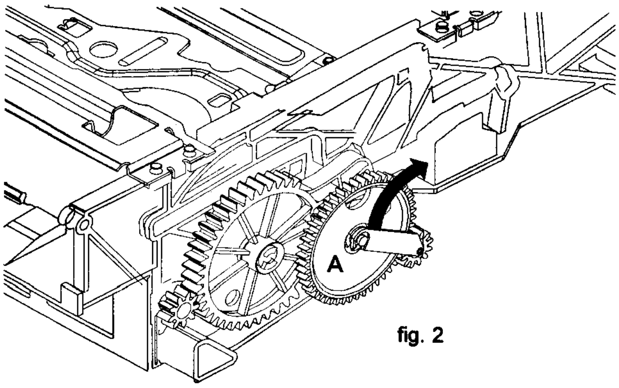


fig. 2

4.1.3 Head disc replacement

Removal :

Nylon gloves should be worn when handling the head disc.

Turn the headdisc until the long hole of the rotor appears in the bigger hole of the scannermotor

Insert the reference pin C (included with each service head disc) through the bigger hole of the lid of the scanner motor until the pin snaps in the long hole of the rotor. (Fig. 3)

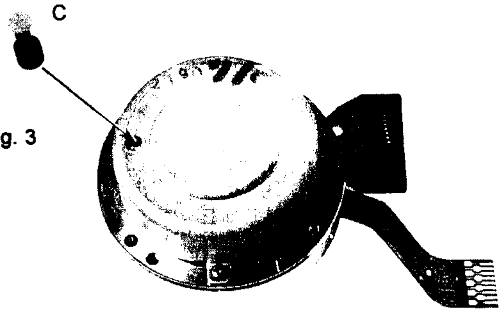
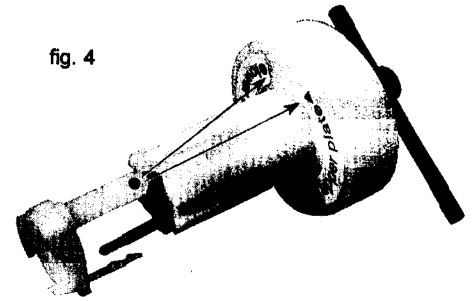


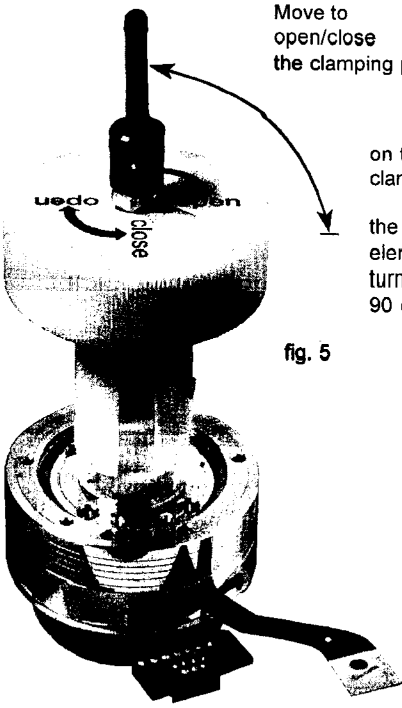
fig. 3

Important:

Choose Installation/Removal of the upper/lower clamping element by turning and attaching the reference element to the tool. (Fig. 4)

fig. 4





Move to open/close the clamping plate

Position the tool on the upper clamping element, loosen the clamping element by turning the lever 90 degrees and remove it from the head disc. (Fig. 5)

fig. 5

Prepare the tool for the lower clamping element.Position the tool on the head disc and make sure that all 3 pins are snapped in the the lower clamping element. Loosen the clamping element by turning the lever 90 degrees and remove the head disc plus the tool from the scanner spindle. (Fig.6)

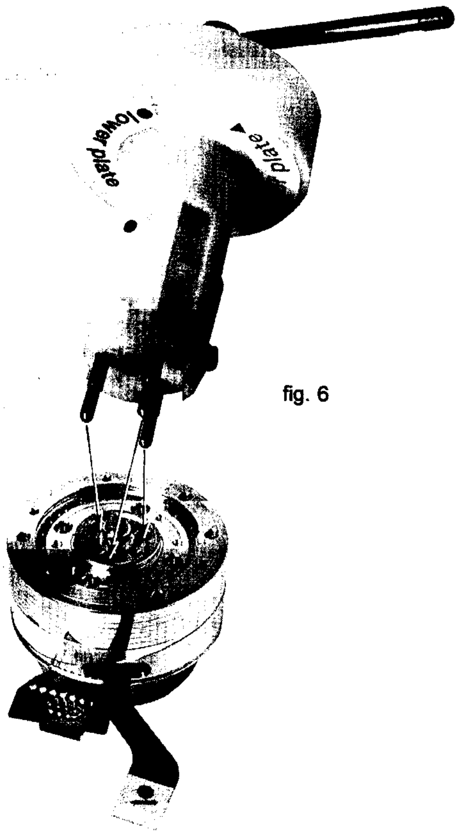


fig. 6

Installation:

Before carrying out the installation of the new head disc make sure that the scanner motor spindle is clean and undamaged. (The spindle has to be free of grease and must not be touched with bare hands)

Insert the 2 Mylar foils (included with each head disc) in the head disc. (Fig.7)

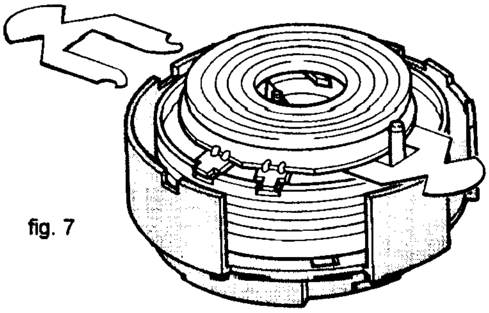


fig. 7

Position the tool (reference: lower clamping element) on the new headdisc (with protective cover) and loosen the lower clamping element.

Position the head disc so that pin D of the protective cover engages in the hole of the stator (the arrow on the protective cover must point towards the scanner print). (Fig. 8)

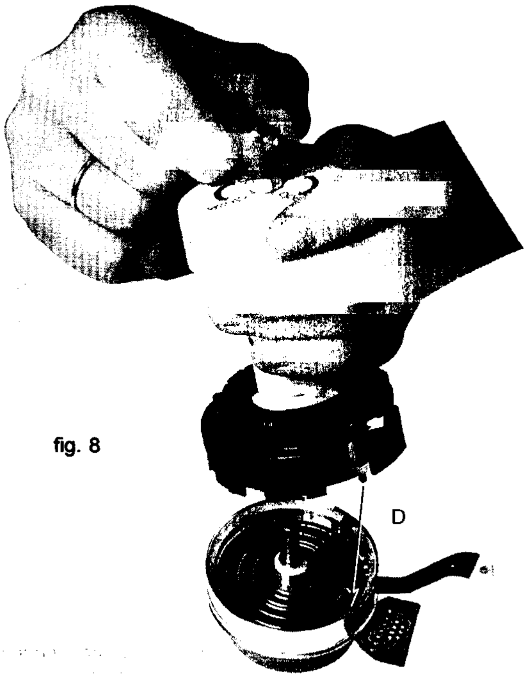


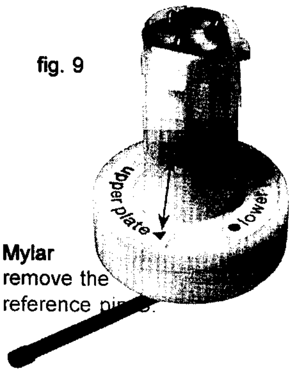
fig. 8

Reach the exact position through pressing the tool down with a force of 1 N. and fix the lower clamping element by turning the lever towards „close“.

Remove the tool.

Change the tool to „upper clamping element“ and position the clamping element exactly. (Fig. 9)

fig. 9



Tighten the clamping element through turning the lever towards „open“.

Position the tool planely on the head disc and fix the clamping element. (Fig.5 „close“)

Remove the protecting cap from the head disc, withdraw the two foils and

Mylar
remove the reference pins.

After replacing the head disc, carry out the following adjustments and checks :

Head switching pulse (gap position, chapter 3)
Write current adjustments (chapter 3)

Check tape path alignment (see paragraph 4.2.1.)

4.1.4 A/C Head (Combi head) (Pos. 36)

Remove the fixing spring (A) (fig. 10)
Remove the fixing screw and replace the A/C head.
Use a new fixing spring (included with new A/Chead) for reassembly.

After the A/C head has been replaced, all adjustments described in paragraph 4.2.1.2 and paragraph 4.2.2 have to be carried out.

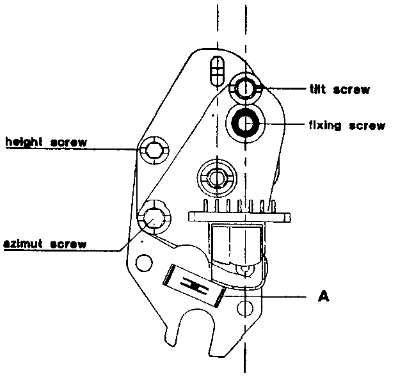


fig. 10

4.1.5 Threading motor (Pos. 38)

Remove the belt and disconnect the connector plug.
Remove the threading motor from the motor supports (Fig. 11).

During reassembly ensure that the threading motor is correctly located in the front and rear supports.

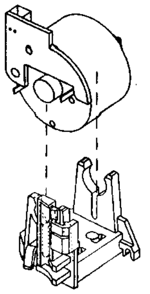


fig. 11

4.1.6 Capstan motor (Pos. 127)

Remove the tape deck.
Remove the belt (pos.126) on the underside;
Remove the three capstan motor fixing screws (Fig. 12) and withdraw the capstan motor downward from the drive assy.
The reassembly is carried out in reverse order. Make sure that the capstan is free of grease.

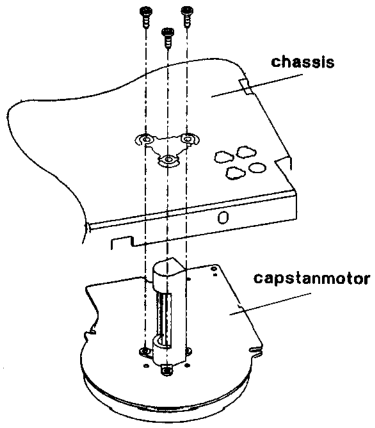


fig. 12

4.1.7 Pressure roller (Pos. 37)

Remove the tape deck
Unhook and remove the pressure roller tension spring.
Release the pressure roller guide (pos. 41) from the guide in the threading motor holder by pressing the top of the motor guide rearwards and rotating the pressure roller guide assembly clockwise by approximately a quarter of a turn (Fig. 13) The pressure roller and guide can now be lifted clear.

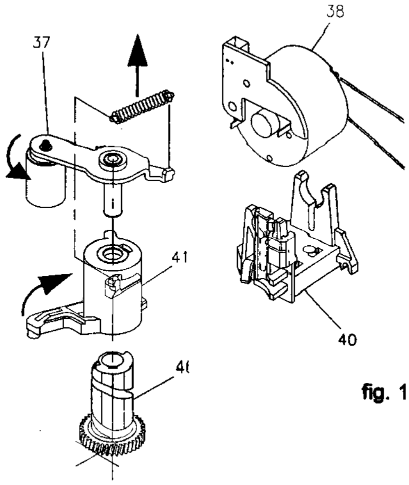
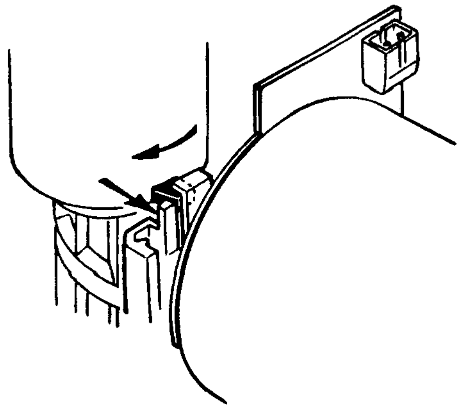


fig. 13



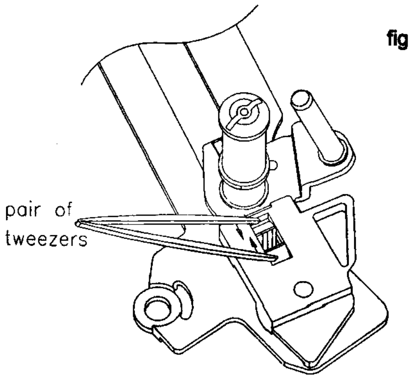
Ensure that no grease from the pressure roller guide gets to the capstan or pressure roller.
The reassembly is carried out in reverse order.

4.1.8 Roller unit right (Pos. 26)

Remove the tape deck.
Compress the two snap hooks by means of a pair of tweezers and remove the roller assy from the roller unit right (Fig. 14).
Unhinge the loading arm right from the holding plate and push the latter towards the front of the deck to remove from the guide (right).

NOTE: During reassembly ensure the link from 25 is engaged in the hole of the holder plate 26.

fig. 14



After replacing the roller unit (right), the tape path has to be checked, and adjusted if necessary (paragraph 4.2.1).

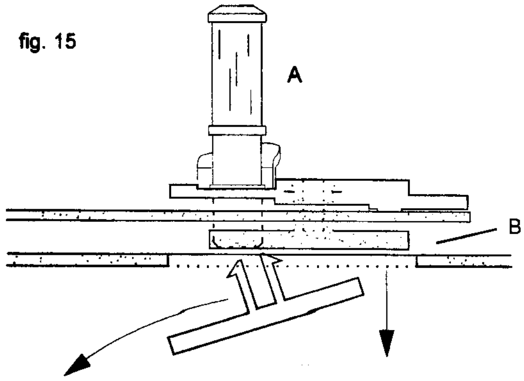
4.1.9 Roller unit left (Pos.23)

Set the drive assy to „Eject“ position.
Unhook the tension arm spring (pos. 11), to avoid the tension arm spring being pre-loaded.
At the bottom side of the drive assy remove the tension lever (pos.112).
Compress the two snap hooks by means of a pair of tweezers (Fig. 9)and remove the roller assy (A) from the plate (B).
Unhinge the loading arm (left) from the holding plate and remove the latter downward from the drive assy through the recess in the chassis (Fig. 15).
The reassembly is carried out in reverse order.

NOTE : During reassembly
1. Place the carriage holding plate in the assembly with the half-round cutout nearest the rear of the deck.
2. When the loading arm is refitted ensure the pin on the underside of 23 is through the link of 24B.

After replacing the roller unit (left) the tape path has to be checked (paragraph 4.2.1.), and adjusted if necessary.

fig. 15



4.2 Adjustments

Adjustments must not be made in the service position.

4.2.1 Tape path

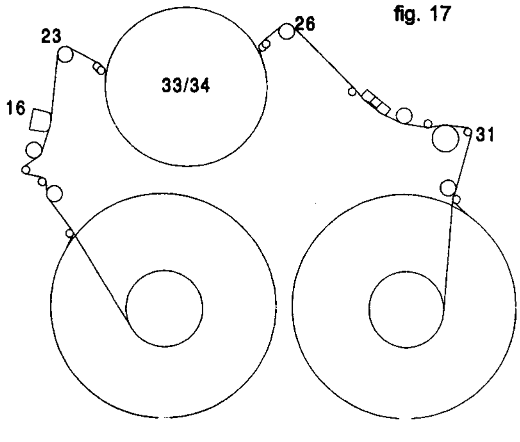
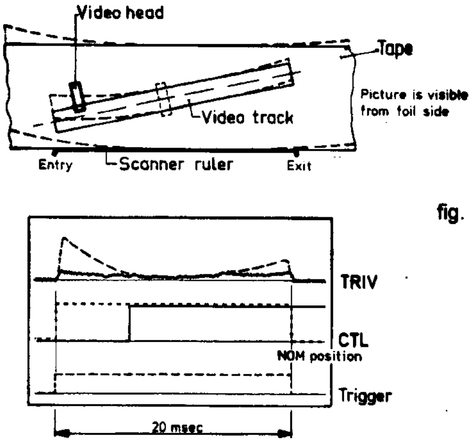


fig. 17
23
26
33/34
16
31

4.2.1.1 Roller left unit/roller unit right

Preparation:
Connect one input of a dual trace oscilloscope to observe the tape sync pulse CTL. The other input (DC coupled) to observe the tracking information TRIV.
Trigger the oscilloscope externally on the head pulse HP1 ("SWIN").

Playback the black and white section of the alignment test tape.
Set the deck in the condition where the video heads are running along the upper edge of the tracks only by:
1. Call the service test program (chapter 2.1)
2. Activate manual tracking (service test program step 03) and watch the tape sync pulse move to the left in relation to the TRIV signal.
3. Note the extreme left hand position reached by the sync pulse, repeat as necessary.
4. Stop the movement of the pulse when the TRIV signal reduces to 1/2 to 2/3 maximum amplitude by pressing the normal play button. A noisy picture (disturbances) is visible on the TV set and the CTL pulse should be to the left of the display.
The recorder will hold this position until the service test progam step 03 is left.
This condition works only if X-distance is adjusted.

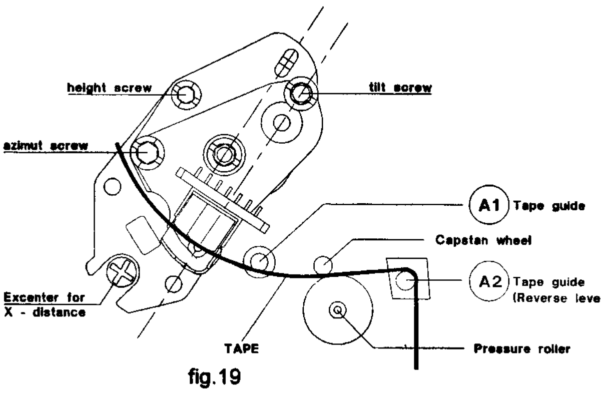

Video head
Tape
Picture is visible from foil side
Video track
Entry
Scanner ruler
Exit
TRIV
CTL
NOM position
Trigger
20 msec
fig. 18

Adjustment:
Adjust the left and right roller units to make the tracking signal TRIV straight and flat as possible (Fig. 18).

4.2.1.2 A/C Combi head

Tilt angle adjustment

Set the drive to feature mode (e.g. +7)
Adjustment :


height screw
tilt screw
azimut screw
A1 Tape guide
Capstan wheel
A2 Tape guide (Reverse lever)
Excenter for X - distance
TAPE
Pressure roller
fig.19

By means of the tilt angle adjusting screw move the tape until the lower edge just touches the tape guide A1 (see Fig. 19) the tape must not be distorted at the lower edge (by pressing onto guide).

Adjustment of the azimuth angle and the head height

Connect an oscilloscope to the linear Audio output.
Play the section of the test cassette with the audio signal 400 Hz.
Adjust for maximum output voltage by means of the height adjustment screw
Play the section of the test cassette with the audio signal 8 kHz.
Adjust to maximum output voltage by means of the azimuth adjustment screw (Fig. 19).
If necessary, repeat this procedure
Check the tilt angle adjustment

If the tape path was completely out of adjustment or if several components in the tape path have been replaced, it is possible, that the adjustments described in paragraph 4.2.1.1 and paragraph 4.2.1.2 have to be repeated several times.

4.2.2 Adjustment of the horizontal distance (x-distance)

Before this adjustment is carried out, insert the test cassette (start from Eject position). Call the service test program (tracking value will take up its nominal position) and press the „play" button. Playback the black/white part of the test cassette.)

Display the TRIV signal on an oscilloscope (DC-coupled) and adjust for maximum voltage by means of the excentric screw (Fig.19).

4.2.3 Brake band and tape tension

Due to further development it is no longer necessary to make theseadjustments after replacement of the brake band.
If the brake band or tape tension are completely misadjusted, set them to a center position; set the drive to „play" and adjust the brake band until the edge of the elbow of the tape tension arm is aligned with the left inner edge of the left guide (fig. 20).

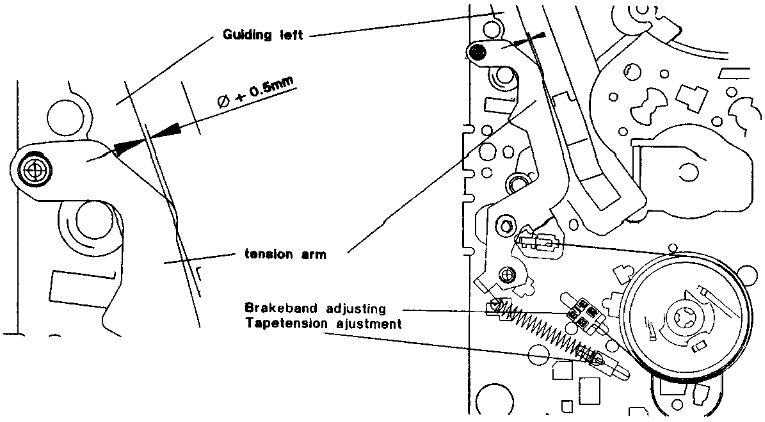
4.2.4 Friction clutch control check

Set the drive to „Play" position.
Place the torquemeter on the right reel.
Turn the capstan motor to move the right reel clockwise.
Keep turning, until the indication at the torquemeter no longer changes (Fig. 21)
The torque has to be 10,5 mNm +/-25% (105gFcm +/-25%)

4.2.5 Reverse brake control

Set the drive to „Reverse" position.
Place a torquemeter on the right reel and turn the latter counterclockwise, until the reel just starts to flip.
The value indicated at the torquemeter has to be 7mNm +/-3mNm (70 gFcm +/-30gFcm) (Fig. 21).

fig. 20



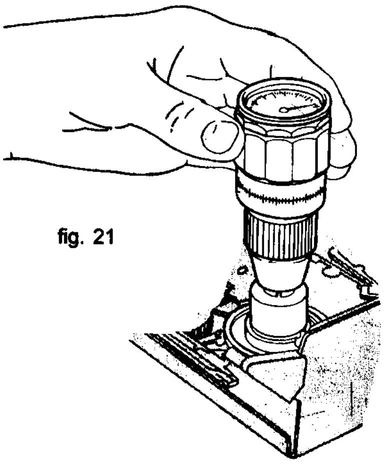
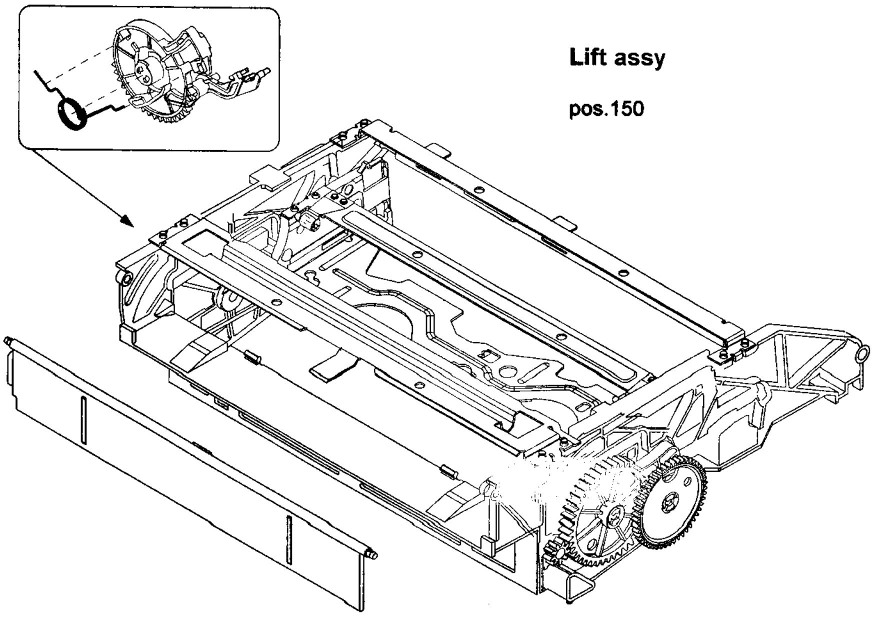


fig. 21

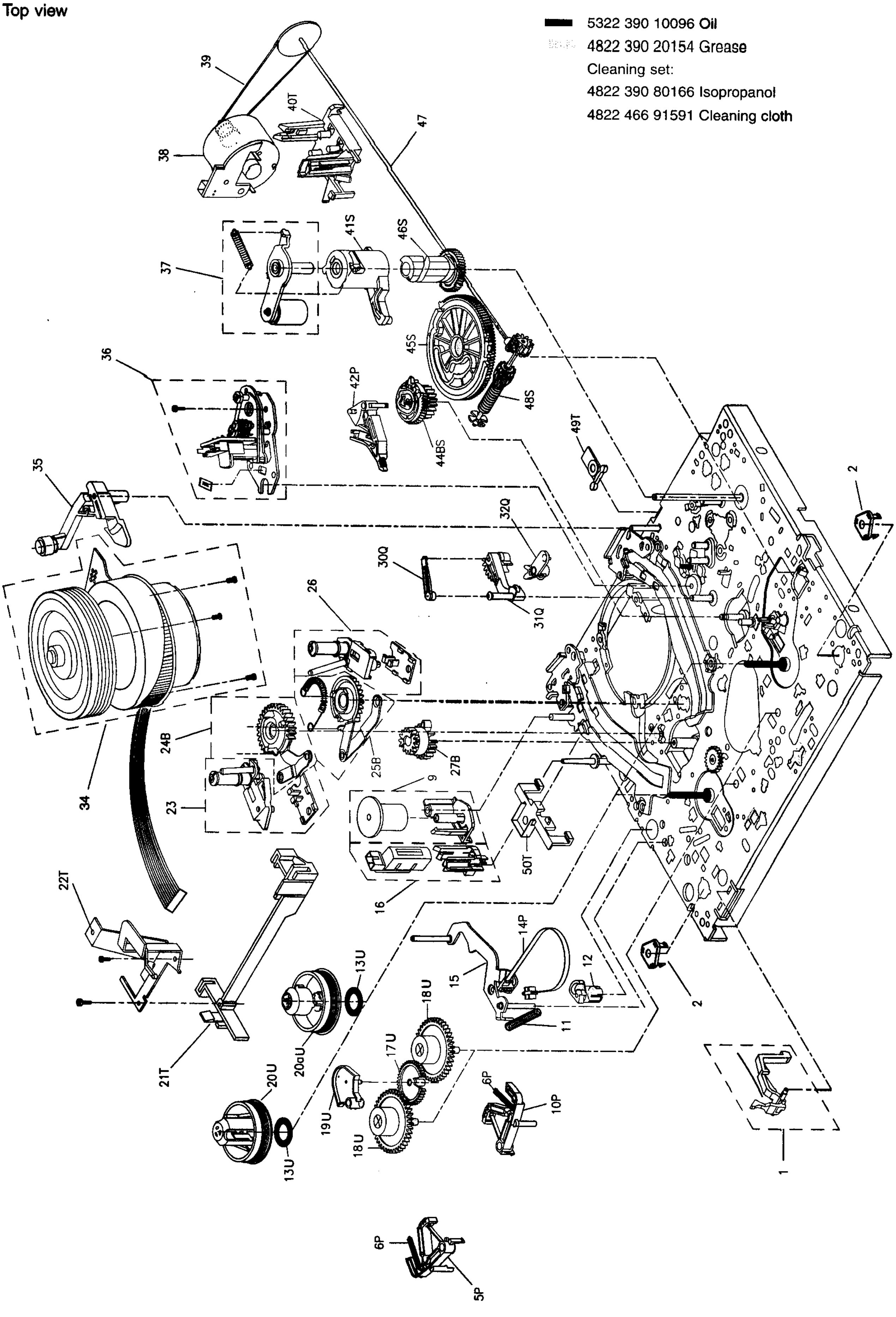


Lift assy

pos.150

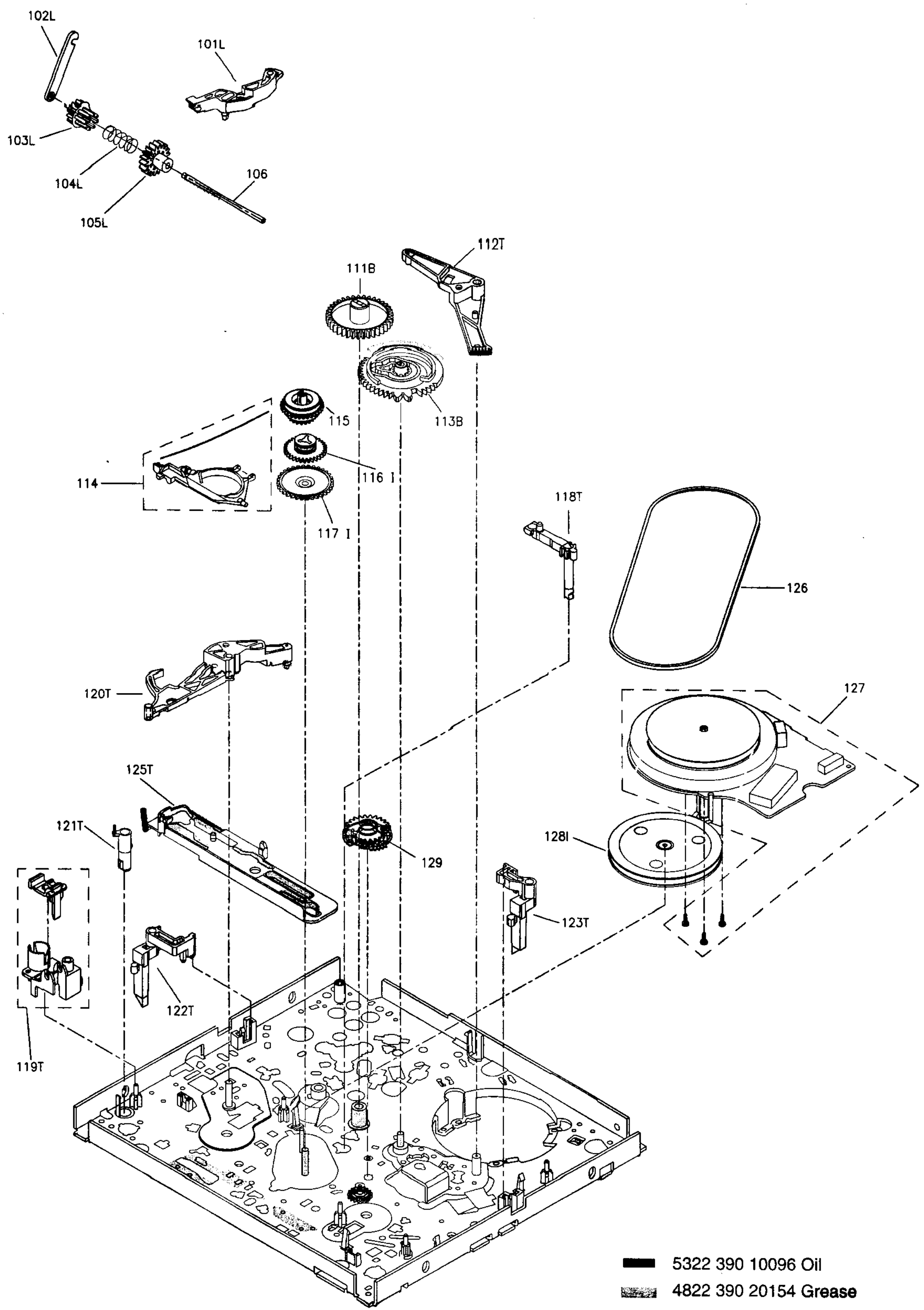
4.3 Exploded view

Top view


39
40T
47
38
41S
46S
37
45S
42P
48S
36
44BS
49T
35
2
32Q
30Q
31Q
26
34
24B
25B
27B
9
23
50T
16
22T
14P
13U
12
15
18U
11
2
21T
20aU
17U
6P
10P
20U
19U
1
18U
13U
6P
5P

■ 5322 390 10096 Oil
▨ 4822 390 20154 Grease
Cleaning set:
4822 390 80166 Isopropanol
4822 466 91591 Cleaning cloth

Underside view


102L
101L
103L
104L
106
105L
112T
111B
115
113B
114
116 I
117 I
118T
126
127
120T
125T
121T
129
128I
123T
122T
119T

■ 5322 390 10096 Oil

▨ 4822 390 20154 **Grease**

Cleaning set:

4822 390 80166 Isopropanol

4822 466 91591 Cleaning cloth

4.4 MECHANICAL PARTS LIST

Pos.	Description	KITS								Code number 4822
		B	I	L	P	Q	S	T	U	
1	Rec. protection lever (with spring)									402 10202
2	Chassis mounting spring (2x)									492 71022
5	Main brake left				P					
6	Main brake spring (2x)				P					
9	Damping roller *)									528 70782
10	Main brake right				P					
11	Tension arm spring									492 33317
12	Tension crank									403 70551
13	Slip ring								U	
14	Tension band				P					
15	Tension arm									403 70547
16	Erase head									249 10522
17	Swivelling gear								U	
18	Brake gear (2x)								U	
19	Swivelling plate								U	
20	Reel table (S)								U	
20a	Reel table (T)								U	
21	Headamplifier holder							T		
22	Bracket							T		
23	Roller unit left									528 70771
24	Loading arm left	B								
25	Loading arm right	B								
26	Roller unit right									528 70772
27	Loading gear	B								
30	Reverse clip					Q				
31	Reverse lever					Q				
32	Intermediate lever					Q				
34	Scanner assy. 4/2 (Head disc and motor)									**4822** 218 12032
35	Cleaning roller									528 70773
36	A/C Head (with clip and screws)									249 10468
37	Pressure roller (with spring)									528 70774
38	Threading motor									361 10809
39	Threading belt									358 20421
40	Motor holder							T		
41	Pressure roller guide						S			
42	Reverse brake				P					
44	Slider gear	B					S			
45	Cam wheel						S			
46	Cam shaft						S			
47	Pulley shaft									528 81462
48	Worm shaft						S			
49	Chassis mounting clip							T		
50	WD-holder							T		

Pos.	Description	KITS								Code number 4822
		B	I	L	P	Q	S	T	U	
101	Cassette loader trigger			L						
102	Clip			L						
103	Cassette loader gear1			L						
104	Cassette loader spring			L						
105	Cassette loader gear2			L						
106	Spindle									535 93277
111	Cam wheel reverse	B								
112	Tension lever							T		
113	Cam wheel tension	B								
114	Clutch lever (with spring)									403 70549
115	Clutch									528 20736
116	Changing gear		I							
117	Double gear		I							
118	Light prism							T		
119	Init flap and holder							T		
120	Cam wheel lever							T		
121	S-VHS lever							T		
122	Prism rihgt							T		
123	Prism left							T		
125	Main slider							T		
126	Driving belt									358 31166
127	Capstan motor (with screws)									361 10805
129	Reverse kicker with transmission gears *)									522 20451
128	Gear pulley		I							
150	Lift									443 64112
KIT	B									310 31955
KIT	I									310 31963
KIT	L									310 32116
KIT	P									310 32191
KIT	Q									310 10658
KIT	S									310 10661
KIT	T									310 10662
KIT	U						3103			109 09190

***) optional**

Um eine hohen Reparaturstandard zu gewährleisten sind mit Ausnahme von Kit T immer alle im Kit enthaltenen Teile zu tauschen.

In order to guarantee a high repairstandard all spare parts included in a kit have to be replaced with the exception of kit T.

Per una riparazione garantita ocorre sostituire tutti i pezzi contenuti nei kit, fatta eccetione per il kit T.

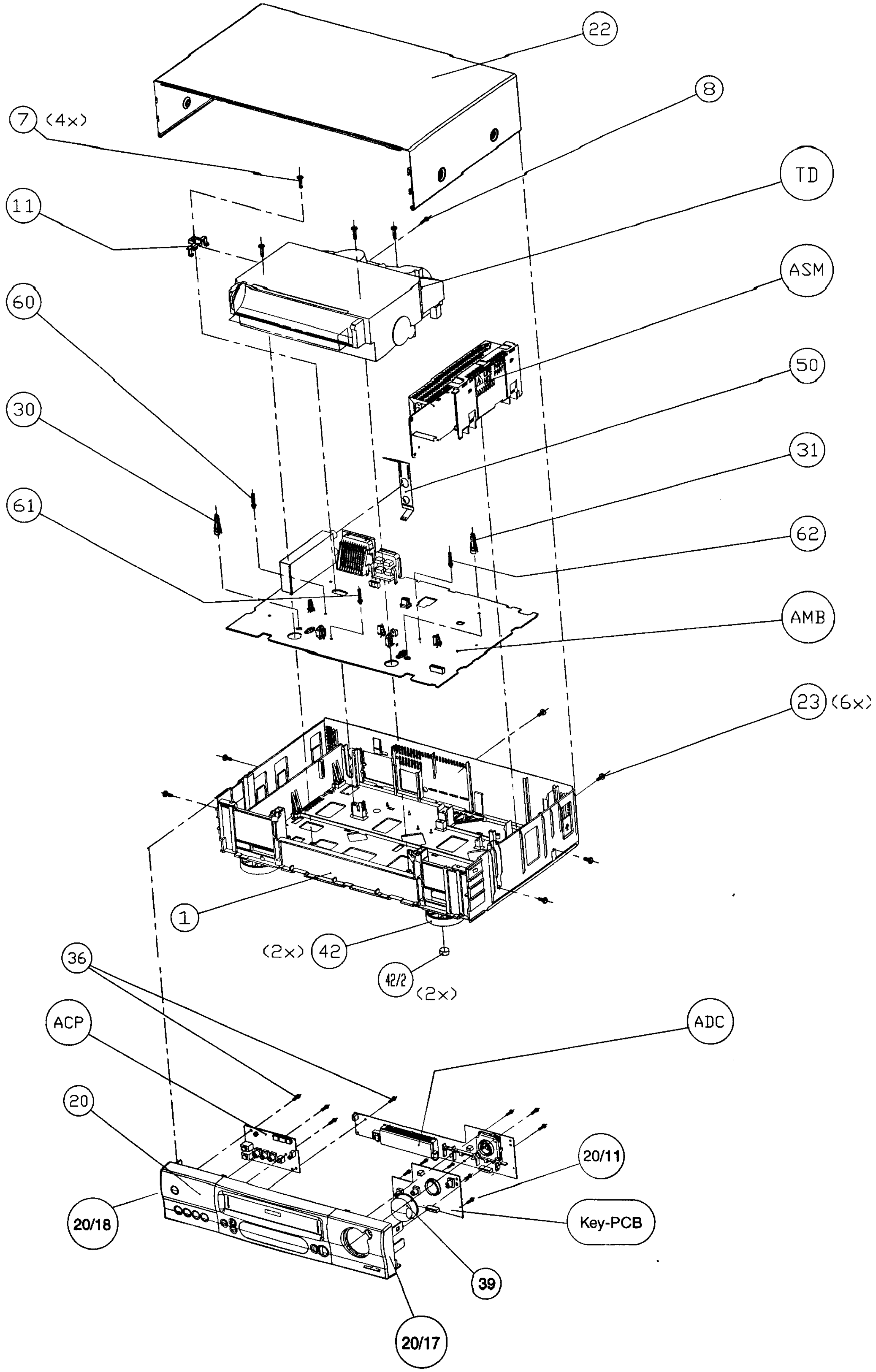
Para obtener un estandár de reparaciones elevado,es necesario cambiar todas las partes contenidas en el kit, la única exceptión es para el kit T.

A fin d'obtenir un standard de réparations élevé, toutes les pièces de rechange incluses dans un kit sont à remplacer, exception faite du kit T.

Om een hoge reparatiekwaliteit te waarbogen moeten, met uitzondering van kit T, altijd alle zich in een kit bevindende onderdelen worden vervangen.

Engineer's remarks

Exploded View of the Set & Mechanical Parts


22
8
7 (4x)
TD
11
ASM
60
50
30
31
61
62
AMB
23 (6x)
1
(2x) 42
42/2 (2x)
36
ACP
ADC
20
20/11
20/18
Key-PCB
39
20/17

Set Parts List

Position	Code Number	Description
1	3103 138 90890	FRAME ASSY
7	3103 100 42400	SCREW P3,5X16
8	4822 502 14431	SCREENING SCREW
11	4822 256 10504	TD-HOLDER
20	3103 138 89930	CONTROL PANEL ASSY VR710/02/16/58
20	3103 138 90750	CONTROL PANEL ASSY VR710/07
20	3103 138 90770	CONTROL PANEL ASSY VR710/39
20	3103 138 91070	CONTROL PANEL ASSY VR765/02/16/58
20	3103 138 91080	CONTROL PANEL ASSY VR765/07
20	3103 138 91100	CONTROL PANEL ASSY VR765/39
20	3103 138 89940	CONTROL PANEL ASSY VR810/02/16
20	3103 138 90780	CONTROL PANEL ASSY VR810/07
20	3103 138 90800	CONTROL PANEL ASSY VR810/39
20	3103 138 90810	CONTROL PANEL ASSY VR910/02/16/58
20	3103 138 90820	CONTROL PANEL ASSY VR910/07
20	3103 138 90840	CONTROL PANEL ASSY VR910/39
20/6	3103 178 29410	LIFT FLAP ASSY VR710-VR810
20/6	3103 178 29770	LIFT FLAP ASSY VR765-VR910
20/7	4822 492 70896	LEG SPRING LIFT FLAP
20/11	2511 076 50010	SCREW 3X8
20/12	3103 138 90140	KEY-PCB VR710/02/07/16/58
20/12	3103 138 91200	KEY-PCB VR710/39
20/12	3103 138 90150	KEY-PCB VR810/02/07/16/39
20/12	3103 138 91180	KEY-PCB VR765/02/07/16/58
20/12	3103 138 91380	KEY-PCB VR765/39
20/12	3103 138 91190	KEY-PCB VR910/02/07/16/39/58
20/17	3103 104 25620	SIDE CAP RIGHT VR710-VR810
20/17	3103 178 31360	SIDE CAP RIGHT VR765-VR910
20/18	3103 104 25610	SIDE CAP LEFT VR710-VR810
20/18	3103 178 31370	SIDE CAP LEFT VR765-VR910
22	3103 141 23350	COVER LAQUERED VR710-VR810
22	3103 141 23410	COVER LAQUERED VR765-VR910
23	4822 502 14109	PLASTITE SCREW 3,5X10
30, 31	4822 256 10198	DISTANCE HOLDER DECK
36	2511 076 50013	SCREW BK3X10
39	3103 104 25670	JOG KNOB VR810
39	3103 178 29840	JOG KNOB VR910
40	3103 104 25680	SHUTTLE RING VR810
40	3103 178 29830	SHUTTLE RING VR910
41	3103 178 29130	AV-COVER VR710-VR810/02/07/16/58
41	3103 178 29590	AV-COVER VR710-VR810/39
41	3103 178 29730	AV-COVER VR765-VR910/02/07/16/58
41	3103 178 30220	AV-COVER VR765-VR910/39
42	3103 178 29460	FOOT ASSY
42/2	4822 462 41806	FOOT RUBBER INLAY
43	2511 076 50013	SCREW BK3X10
50	4822 492 11687	SPRING
60, 61, 62	4822 256 10359	DISTANCE HOLDER MOBO

Power Supply ASM

MISCELLANEOUS

1115	242202514547	CONNECTOR 17P F 1.25 FFC 0.3
1150	▲ 311225024750	MAINS BUSH
1151	▲ 310313886490	FUSE T1.25A
1152	▲ 242254943073	SURGE PROTECT
1153	▲ 242208610514	FUSE T100mA

CAPACITORS

2150	▲ 222233629146	220 nF	275V
2151	202030890136	100 nF	400V
2152	222215190014	47 μF	400V
2153	▲ 202055490127	2.2 nF	250V
2154	202002191332	47 μF	50V
2155	222236545473	47 nF	250V
2156	202055890442	47 pF	2kV
2157	202055890442	47 pF	2kV
2158	202055295376	4.7 nF	50V
2159	202055291156	1 nF	50V
2160	202030890117	100 nF	50V
2161	202232600028	689 pF	100V
2162	202030890117	100 nF	50V
2163	319802534790	47 μF	25V
2164	319802531010	100 μF	25V
2165	202002191408	470 μF25V	
2166	202002191408	470 μF25V	
2167	202002191408	470 μF25V	
2168	222237065682	6.8 nF	400V
2170	202002191332	47 μF	50V
2172	202055295376	4.7 nF	50V
2173	202002191386	2200 μF	16V
2174	202002490502	1000 μF	6.3V
2175	202030890117	100 nF	50V

RESISTORS

3150	212255000124	VDR DC 1MA/470V MAX 775V	
3151	▲ 232224213335	3.3 M	
3152	212010390018	220 R	
3153	▲ 232224213335	3.3 M	
3154	▲ 232224213335	3.3 M	
3155	▲ 232220533109	10 R	
3156	232219463123	12 k	
3157	▲ 232220733102	1 k	FUSE NFR25H
3158	▲ 232220533479	47 R	NFR25
3159	319801106890	68 R	
3160	319801104710	470 R	0.17W
3161	319801101820	1.8 k	0.17W
3162	319801108230	82 k	
3163	319801108220	8.2 k	0.17W
3164	319801102220	2.2 k	0.17W
3165	319801104720	4.7 k	0.17W
3166	319801102230	22 k	0.17W
3167	232215623902	3.9 k	1%
3168	319801101530	15 k	0.17W
3169	232215621003	10 k	1%
3170	319801104710	470 R	0.17W
3171	232215621008	1.0 R	1%
3172	319801101090	10 R	0.17W
3175	319801102210	220 R	0.17W
3176	319801101020	1 k	0.17W
3177	319801101030	10 k	0.17W
3178	232215625602	5.6 k	1%
3179	212036890118	470 R	TRIMMER
3180	232215624702	4.7 k	1%
3181	319801101090	10 R	0.17W
3182	319801101090	10 R	0.17W
3183	319801101510	150 R	0.17W
3184	319801101030	10 k	0.17W
3185	319801106810	680 R	0.17W
3186	319801101020	1 k	0.17W
3187	319801104710	470 R	0.17W
3188	319801102240	220 k	0.17W
3189	319801104730	47 k	0.17W
3190	319801101020	1 k	0.17W
3191	▲ 230620403479	47 R	FUSE NFR25
3192	319801103920	3.9 k	0.17W
3193	319801106830	68 k	
3194	319801104720	4.7 k	0.17W
3195	▲ 232220533478	4.7 R	FUSE NFR25
3196	319801106810	680 R	0.17W
3197	319801101050	1 M	0.17W
3198	319801102240	220 k	0.17W
3199	232215623309	33 R	1%

COILS

5150	▲ 311243820170	LINE FILTER CHOKE (TDK)
5151	▲ 310312830460	TRANSF TDK SRW32ES
5153	242254943921	BEAD 150MHZ 1K B
5154	319801821090	10 μH
5155	242253596691	COIL 0MUH33 PM20
5156	242253594642	22 μH

DIODES

6151	933838660673	1N4006GP
6152	933838660673	1N4006GP
6153	933838660673	1N4006GP
6154	933838660673	1N4006GP
6155	933548710673	1N4003GP A (GI) A
6156	933548710673	1N4003GP A (GI) A
6157	933723420133	BYD33J
6158	933548710673	1N4003GP A (GI) A
6159	933548710673	1N4003GP A (GI) A
6160	933838660673	1N4006GP
6161	933624760133	BAT85
6162	932203213673	MTZJ5.6B A (RHM0)
6163	932203213673	MTZJ5.6B A (RHM0)
6164	932208187683	BYW98-200 RL
6165	932208187683	BYW98-200 RL
6166	932212672673	BYV27-200 A(TEGO)
6167	933723400133	BYD33D
6168	319801033390	BZX79-F33
6169	933723400133	BYD33D
6170	932212818682	SB340L-7010-PKG1
6172	319801010010	1N4148
6173	319801010010	1N4148
6174	319801010010	1N4148

TRANSISTORS & IC's

7150	932207704687	FET POW STP3NA60 FI
7151	932205310682	MC44603P
7152	▲ 932208848682	OPTO COUPL K1150PG (TEG)
7153	932208367676	TL431CZ-AP
7154	319802043430	BC327-25
7155	319802043430	BC327-25
7156	319802040030	BC547B
7157	319802040030	BC547B
7158	932210646687	FET POW STD17N06-1(ST00)L
7159	319802040030	BC547B
7160	933535470126	MPSA43
7161	319802043430	BC327-25

REPAIR KITS

4822 310 11237	POWER SUPPLY REPAIR KIT

▲... Safety component, use only this type

Motherboard

MISCELLANEOUS

0007	310310761690	TACHO HOLDER
0008	310310761840	TACHO HOLDER
0020	310310761680	MOBO SENSORHOLDER DECK
0021	310310761680	MOBO SENSORHOLDER DECK
0022	310310761680	MOBO SENSORHOLDER DECK
1001	242254301125	CRYSTAL 4.43MHz
1322	▲ 242208610776	FUSE 0.5A
1323	▲ 242208610779	FUSE 1.0A
1324	▲ 242208610776	FUSE 0.5A
1325	▲ 242208610779	FUSE 1.0A
1451	242254300922	RESXTL 20MHZ 20P AT-49 A
1460	310310790110	SWITCH ASSY
1461	310310790110	SWITCH ASSY
1701	242254290063	TUMOD V+U PLL IEC BGIDK B
1703	242254944341	OFWK9656M
1704	242254942068	OFWG3956M
1704	932204272682	OFWK3953M
1705	242254941595	FILTER BS 5.5MHz
1705	242254940808	CER.FILTER TPS6,0MB-TF21F
1708	311229712190	TP926L MK2 (BOOSTER)

when changing TUMOD order also spring 4822 492 11687

1760	242254301119	CRYSTAL 4MHz
1761	242254300781	CRYSTAL 18.432MHz
1871	242254300779	QUARTZ 13MHZ875 20P HC49U
1911	310310720440	CONNECTOR 9P
1942	242202514527	CON BM V17P F1.25 FFC 0.3
1944	242202514524	CON V 14P F1.25 FFC 0.3
1946	310310720720	CAPSTAN-MOBO-SOCKET JST
1947	242202514512	CONNECTOR 3 PIN
1948	242202514515	CONNECTOR 6 PIN
1951	310310024010	SCART SOCKET 7133
1952	310310024210	SCART SOCKET 7135
1954	310310023300	CINCH 4FOLD
1956	242202514516	CONNECTOR 7 PIN
1957	242203411514	CONNECTOR 1 PIN
1960	242202514516	CONNECTOR 7 PIN
1964	242202509405	CONNECTOR 2 PIN
1991	242202514512	CONNECTOR 3 PIN

CAPACITORS

2000	319802321040	100	nF	25V
2001	319801701030	10	nF	50V
2002	319801701030	10	nF	50V
2003	319801701030	10	nF	50V
2004	319801721050	1	µF	16V
2005	319801721050	1	µF	16V
2006	319801701030	10	nF	50V
2007	319801701030	10	nF	50V
2008	319802321040	100	nF	25V
2009	319801701030	10	nF	50V
2011	319802322240	220	nF	25V
2012	319802304730	47	nF	25V
2013	319801702230	22	nF	50V
2014	319802321040	100	nF	25V
2015	319802951080	1	µF	50V
2016	319801701040	100	nF	16V
2017	319801721050	1	µF	16V
2018	319802931090	10	µF	25V
2019	319802931090	10	µF	25V
2020	319801701030	10	nF	50V
2021	319802931090	10	µF	25V
2022	319802321040	100	nF	25V
2023	319802321040	100	nF	25V
2024	319802922290	22	µF	16V
2025	319801701030	10	nF	50V
2026	319801701030	10	nF	50V
2027	319802954780	4.7	µF	50V
2028	319801701030	10	nF	50V
2029	319801721050	1	µF	16V
2030	319802951080	1	µF	50V
2032	319801701030	10	nF	50V
2033	319801701030	10	nF	50V
2034	319802321040	100	nF	25V
2035	319802922290	22	µF	16V
2036	202255205335	220	pF	50V
2037	319801602290	22	pF	50V
2038	202255205337	390	pF	50V
2039	319802902210	220	µF	6.3V
2040	319801608290	82	pF	50V
2041	319802321040	100	nF	25V
2042	319801602290	22	pF	50V
2043	319801603990	39	pF	50V
2044	319802321040	100	nF	25V
2045	319801701030	10	nF	50V
2046	319801604790	47	pF	50V
2047	319802921010	100	µF	16V
2049	319801602790	27	pF	50V
2050	319801701030	10	nF	50V
2052	319801602210	220	pF	50V
2053	319802924790	47	µF	16V
2054	319802954780	4.7	µF	50V
2055	319802924790	47	µF	16V
2056	319802954780	4.7	µF	50V
2057	319801724730	47	nF	50V
2060	319802321040	100	nF	25V
2071	319801701030	10	nF	50V
2072	319801601510	150	pF	50V
2073	319802921010	100	µF	16V
2074	202255205335	220	pF	50V
2075	319801701030	10	nF	50V
2076	319802321040	100	nF	25V
2077	319801701040	100	nF	16V
2078	319801701030	10	nF	50V
2079	319801608290	82	pF	50V
2080	319801601010	100	pF	50V
2082	319801701030	10	nF	50V
2083	319801701030	10	nF	50V
2084	319802931090	10	µF	25V
2085	202055295343	470	nF	16V
2086	319801701030	10	nF	50V
2087	319801606810	680	pF	50V
2088	319801721050	1	µF	16V
2089	319801702230	22	nF	50V
2090	319801602210	220	pF	50V
2091	319801701030	10	nF	50V
2092	319801601010	100	pF	50V
2093	319801604790	47	pF	50V
2094	319802321040	100	nF	25V
2095	319801721050	1	µF	16V
2096	319801701040	100	nF	16V
2097	319801601090	10	pF	50V
2098	319801701030	10	nF	50V
2099	202055295338	100	nF	
2101	319801601010	100	pF	50V
2104	319801602290	22	pF	50V
2105	202055295677	220	nF	
2106	319802924790	47	µF	16V
2107	319801701030	10	nF	50V
2108	319801702230	22	nF	50V
2110	319801701030	10	nF	50V
2111	319801701030	10	nF	50V
2112	319801701030	10	nF	50V
2113	319801701030	10	nF	50V
2114	319801701030	10	nF	50V
2115	319801701030	10	nF	50V
2116	319801701030	10	nF	50V
2117	319801701030	10	nF	50V
2118	319801701030	10	nF	50V
2122	202055295677	220	nF	
2123	319801701030	10	nF	50V
2124	319801701030	10	nF	50V
2125	319802924790	47	µF	16V
2126	319801602290	22	pF	50V
2321	319802321040	100	nF	25V
2322	319802321040	100	nF	25V
2323	319802532210	220	µF	25V
2324	319802532210	220	µF	25V
2325	319801403340	330	nF	50V
2326	319802532210	220	µF	25V
2328	319802921010	100	µF	16V
2400	319802921010	100	µF	16V
2401	319802321040	100	nF	25V
2402	319801601010	100	pF	50V
2403	319801601010	100	pF	50V
2404	319801702220	2.2	nF	50V
2405	319801602210	220	pF	50V

▲... Safety component, use only this type

Motherboard

2406	319802921010	100 µF	16V
2408	319801721050	1 µF	16V
2411	319801702220	2.2 nF	50V
2412	319801701030	10 nF	50V
2451	319802321040	100 nF	25V
2452	319802922290	22 µF	16V
2453	319801721050	1 µF	16V
2454	319802321040	100 nF	25V
2455	319802321040	100 nF	25V
2456	319801602790	27 pF	50V
2457	319801603390	33 pF	50V
2458	319801701030	10 nF	50V
2459	319801602790	27 pF	50V
2461	319801704720	4.7 nF	50V
2462	319802531010	100 µF	25V
2463	319801701030	10 nF	50V
2471	319802924790	47 µF	16V
2472	319802921010	100 µF	16V
2473	319801704720	4.7 nF	50V
2474	319801702220	2.2 nF	50V
2475	319802924790	47 µF	16V
2476	319801703330	33 nF	50V
2477	319802321040	100 nF	25V
2478	319801701030	10 nF	50V
2479	319801701030	10 nF	50V
2480	319802921010	100 µF	16V
2482	319802321040	100 nF	25V
2483	319801702230	22 nF	50V
2484	202001292784	1 µF	50V
2485	202001292784	1 µF	50V
2486	202001292784	1 µF	50V
2487	319802321040	100 nF	25V
2489	319802532210	220 µF	25V
2490	319802321040	100 nF	25V
2491	319801601010	100 pF	50V
2492	319801702230	22 nF	50V
2493	319801701030	10 nF	50V
2494	319802321040	100 nF	25V
2495	319801724730	47 nF	50V
2496	319801702230	22 nF	50V
2497	319801701030	10 nF	50V
2501	212255100008	VDR	MAX 21V
2502	212255100008	VDR	MAX 21V
2503	212255100008	VDR	MAX 21V
2504	212255100008	VDR	MAX 21V
2505	212255100008	VDR	MAX 21V
2506	212255100008	VDR	MAX 21V
2507	212255100008	VDR	MAX 21V
2508	212255100008	VDR	MAX 21V
2509	212255100008	VDR	MAX 21V
2510	212255100008	VDR	MAX 21V
2511	212255100008	VDR	MAX 21V
2512	212255100008	VDR	MAX 21V
2513	319802921010	100 µF	16V
2514	319802924790	47 µF	16V
2515	319802321040	100 nF	25V
2516	319802321040	100 nF	25V
2517	319802321040	100 nF	25V
2518	319802321040	100 nF	25V
2519	319802321040	100 nF	25V
2520	319802321040	100 nF	25V
2521	319802321040	100 nF	25V
2522	319802321040	100 nF	25V
2523	319802924790	47 µF	16V
2526	319801721050	1 µF	16V
2527	319802924790	47 µF	16V
2528	319801721050	1 µF	16V
2529	319802924790	47 µF	16V
2530	319801721050	1 µF	16V
2532	319801601090	10 pF	50V
2533	319801721050	1 µF	16V
2534	319801601090	10 pF	50V
2535	319802931090	10 µF	25V
2536	319802931090	10 µF	25V
2537	319801604710	470 pF	50V
2538	319801604710	470 pF	50V
2539	319801701030	10 nF	50V
2540	319801701030	10 nF	50V
2541	319801601010	100 pF	50V
2542	319801606890	68 pF	50V
2543	319801701020	1 nF	50V
2544	319801701020	1 nF	50V
2545	319801701040	100 nF	16V
2546	319801601010	100 pF	50V
2547	319801601010	100 pF	50V
2601	319802321040	100 nF	25V
2602	319802922290	22 µF	16V
2603	319802924790	47 µF	16V
2604	319801721050	1 µF	16V
2605	319801701030	10 nF	50V
2606	319802321040	100 nF	25V
2607	319802924790	47 µF	16V
2608	319802321040	100 nF	25V
2609	319802924790	47 µF	16V
2610	319801701530	15 nF	50V
2611	202255205244	39 nF	50V
2612	319801702220	2.2 nF	50V
2613	319802931090	10 µF	25V
2614	319802321040	100 nF	25V
2615	319802924790	47 µF	16V
2616	319802952280	2.2 µF	50V
2617	319801721050	1 µF	16V
2618	319801701030	10 nF	50V
2619	319801701020	1 nF	50V
2620	319801603310	330 pF	50V
2621	319801701020	1 nF	50V
2622	202255205341	820 pF	50V
2623	319802931090	10 µF	25V
2624	319802304730	47 nF	25V
2625	202030090606	12 nF	50V
2626	319802922290	22 µF	16V
2641	319802924790	47 µF	16V
2642	319801701020	1 nF	50V
2643	319802924790	47 µF	16V
2644	202030090611	27 nF	50V
2645	319801703330	33 nF	50V
2646	202030090573	10 nF	50V
2651	319802921010	100 µF	16V
2652	319801701030	10 nF	50V
2653	319801701040	100 nF	16V
2654	319801702230	22 nF	50V
2655	319802952280	2.2 µF	50V
2656	319801601010	100 pF	50V
2657	223891015649	100 nF	25V
2658	319801703320	3.3 nF	50V
2659	319802924790	47 µF	16V
2660	319802931090	10 µF	25V
2661	223891015649	100 nF	25V
2662	319801701030	10 nF	50V
2663	319801703320	3.3 nF	50V
2664	319802924790	47 µF	16V
2665	319802931090	10 µF	25V
2666	319801701020	1 nF	50V
2668	202055295677	220 nF	
2669	202055295677	220 nF	
2671	319802951080	1 µF	50V
2672	319802951080	1 µF	50V
2674	202055295677	220 nF	
2675	202055295677	220 nF	
2677	202055295677	220 nF	
2678	202055295677	220 nF	
2679	319802951080	1 µF	50V
2680	319802931090	10 µF	25V
2681	319802951080	1 µF	50V
2683	319802931090	10 µF	25V
2684	319801721050	1 µF	16V
2685	319802931090	10 µF	25V
2686	202055295677	220 nF	
2687	319802321040	100 nF	25V
2701	202002191355	2.2 µF	50V
2702	319802321040	100 nF	25V
2703	319802552290	22 µF	50V
2704	319801604710	470 pF	50V
2705	319801701030	10 nF	50V
2706	319802931090	10 µF	25V
2707	319802321040	100 nF	25V
2708	319802322240	220 nF	25V
2709	202055294914	8.2 pF	50V
2710	319802321040	100 nF	25V
2712	319801701020	1 nF	50V
2713	319801601210	120 pF	50V
2714	319801602210	220 pF	50V

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2715	319802952280	2.2	µF	50V
2720	319802921010	100	µF	16V
2721	319802321040	100	nF	25V
2722	319801604710	470	pF	50V
2723	319802321040	100	nF	25V
2724	319801701030	10	nF	50V
2725	202055295499	100	nF	50V
2726	319802952280	2.2	µF	50V
2727	319801701040	100	nF	16V
2728	319801601010	100	pF	50V
2729	319801605690	56	pF	50V
2730	319801605690	56	pF	50V
2758	319801704720	4.7	nF	50V
2759	319801704720	4.7	nF	50V
2760	319801703320	3.3	nF	50V
2761	319801701040	100	nF	16V
2762	319802571090	10	µF	100V
2763	319801606810	680	pF	50V
2764	319801701030	10	nF	50V
2765	319801701040	100	nF	16V
2766	319802931090	10	µF	25V
2767	319801701030	10	nF	50V
2768	319802571090	10	µF	100V
2769	319802571090	10	µF	100V
2770	319801724740	470	nF	16V
2771	319801604790	47	pF	50V
2772	319801606810	680	pF	50V
2773	319801703320	3.3	nF	50V
2775	319801701030	10	nF	50V
2776	319802954780	4.7	µF	50V
2778	319801724740	470	nF	16V
2779	319801724740	470	nF	16V
2780	319801704720	4.7	nF	50V
2781	319801724740	470	nF	16V
2782	319802924790	47	µF	16V
2783	319801701040	100	nF	16V
2784	319801604790	47	pF	50V
2785	319801724740	470	nF	16V
2786	319801724740	470	nF	16V
2787	319801603380	3.3	pF	50V
2788	319801603380	3.3	pF	50V
2789	319801701030	10	nF	50V
2790	319802571090	10	µF	100V
2791	319801701030	10	nF	50V
2792	319801604790	47	pF	50V
2793	319801721050	1	µF	16V
2794	319801721050	1	µF	16V
2795	319801601020	1	nF	50V
2796	319801601020	1	nF	50V
2797	319801601020	1	nF	50V
2798	319801601020	1	nF	50V
2799	319802924790	47	µF	16V
2800	319801602290	22	pF	50V
2801	319801601090	10	pF	50V
2802	319802321040	100	nF	25V
2803	319802321040	100	nF	25V
2804	319802924790	47	µF	16V
2805	319801721050	1	µF	16V
2806	319801601090	10	pF	50V
2807	319801606810	680	pF	50V
2808	319801721050	1	µF	16V
2809	319801721050	1	µF	16V
2810	319801721050	1	µF	16V
2811	319801701030	10	nF	50V
2812	319802924790	47	µF	16V
2813	319802321040	100	nF	25V
2814	319801701030	10	nF	50V
2815	319801701030	10	nF	50V
2816	319801701030	10	nF	50V
2817	319802321040	100	nF	25V
2818	319801701030	10	nF	50V
2819	319801701030	10	nF	50V
2820	319801704720	4.7	nF	50V
2821	319801701030	10	nF	50V
2822	319802954780	4.7	µF	50V
2823	319802924790	47	µF	16V
2824	319801721050	1	µF	16V
2825	319801701030	10	nF	50V
2826	319801701030	10	nF	50V
2827	319802931090	10	µF	25V
2828	319801601020	1	nF	50V
2829	319801601020	1	nF	50V
2830	319802321040	100	nF	25V
2831	319802931090	10	µF	25V
2832	319801702220	2.2	nF	50V
2833	319801702220	2.2	nF	50V
2834	319801601810	180	pF	50V
2835	319801601810	180	pF	50V
2836	319801721050	1	µF	16V
2837	319801721050	1	µF	16V
2839	319802902210	220	µF	6.3V
2840	319801724740	470	nF	16V
2850	202030890117	100	nF	50V
2851	319802904790	47	µF	6.3V
2852	319802321040	100	nF	25V
2853	319802321040	100	nF	25V
2855	319801701040	100	nF	16V
2856	319802304730	47	nF	25V
2857	319801601210	120	pF	50V
2860	319801701020	1	nF	50V
2863	202055295677	220	nF	
2864	319801608280	8.2	pF	50V
2865	319801602290	22	pF	50V
2866	202055295338	100	nF	
2867	319801602290	22	pF	50V
2872	319802321040	100	nF	25V
2873	319802321040	100	nF	25V
2874	319802321040	100	nF	25V
2875	319801602290	22	pF	50V
2876	319801602290	22	pF	50V
2877	319802924790	47	µF	16V
2878	319802321040	100	nF	25V

RESISTORS

3001	319801102220	2.2	k	0.17W
3002	319802151820	1.8	k	0.1W
3003	319802151020	1	k	0.1W
3004	319802158220	8.2	k	0.1W
3005	319802151020	1	k	0.1W
3006	319801105620	5.6	k	0.17W
3009	319802151010	100	R	0.1W
3010	319801104730	47	k	0.17W
3011	319801101020	1	k	0.17W
3012	319801103930	39	k	0.17W
3013	319802151050	1	M	0.1W
3015	319802155610	560	R	0.1W
3016	319802151030	10	k	0.1W
3017	212010892619	2.2	k	1%
3019	212010892614	680	R	1%
3020	212010893465	1.3	k	1%
3021	319802152240	220	k	0.1W
3022	319802151540	150	k	0.1W
3023	319802152210	220	R	0.1W
3024	319802151030	10	k	0.1W
3025	319802152710	270	R	0.1W
3026	212010892624	4.7	k	1%
3027	319802154710	470	R	0.1W
3029	319802154710	470	R	0.1W
3030	319801106810	680	R	0.17W
3031	319802151020	1	k	0.1W
3032	319802152220	2.2	k	0.1W
3033	319802151510	150	R	0.1W
3034	319801102220	2.2	k	0.17W
3035	319801101010	100	R	0.17W
3036	319801103310	330	R	0.17W
3037	319802152220	2.2	k	0.1W
3041	319801106810	680	R	0.17W
3042	319801104710	470	R	0.17W
3046	319802152220	2.2	k	0.1W
3047	319801104730	47	k	0.17W
3048	319801101040	100	k	0.17W
3061	319802151230	12	k	0.1W
3062	319802151520	1.5	k	0.1W
3063	319802158220	8.2	k	0.1W
3065	319801103920	3.9	k	0.17W
3066	319802154720	4.7	k	0.1W
3067	319801101020	1	k	0.17W
3068	319802153330	33	k	0.1W
3069	319802152720	2.7	k	0.1W
3070	319802151020	1	k	0.1W

▲... Safety component, use only this type

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3072	319801101520	1.5	k	0.17W
3073	319802158220	8.2	k	0.1W
3074	212010892514	15	k	1%
3075	319802151040	100	k	0.1W
3076	319802151030	10	k	0.1W
3077	319802153920	3.9	k	0.1W
3078	319802151830	18	k	0.1W
3079	319802156810	680	R	0.1W
3081	319802152220	2.2	k	0.1W
3082	319801104720	4.7	k	0.17W
3083	319801101020	1	k	0.17W
3084	319802152230	22	k	0.1W
3085	319802152730	27	K	0.1W
3086	319802152720	2.7	k	0.1W
3087	319802151030	10	k	0.1W
3088	212036890124	22	k	POT
3089	212036890119	1	k	POT
3090	319801101030	10	k	0.17W
3091	319802154720	4.7	k	0.1W
3092	319802154720	4.7	k	0.1W
3093	319802151030	10	k	0.1W
3094	319802151030	10	k	0.1W
3095	319801101010	100	R	0.17W
3101	319802154720	4.7	k	0.1W
3102	319802155610	560	R	0.1W
3103	319802155610	560	R	0.1W
3104	319802151120	1.1	k	
3105	319802154720	4.7	k	0.1W
3106	319802151530	15	k	0.1W
3107	319802153310	330	R	0.1W
3108	319802154720	4.7	k	0.1W
3109	319802154710	470	R	0.1W
3110	319802153310	330	R	0.1W
3111	319802152240	220	k	0.1W
3112	319802151030	10	k	0.1W
3113	319802153310	330	R	0.1W
3114	212010892631	27	k	1%
3115	212010892672	5.6	R	
3116	319802151230	12	k	0.1W
3118	212036890123	10	k	POT
3119	319802152220	2.2	k	0.1W
3120	319802151020	1	k	0.1W
3321	319801102240	220	k	0.17W
3322	319801104790	47	R	0.17W
3323	319802151030	10	k	0.1W
3325	319802152240	220	k	0.1W
3327	319801102210	220	R	0.17W
3328	319801101020	1	k	0.17W
3330	319801104720	4.7	k	0.17W
3331	319801101040	100	k	0.17W
3332	319802151030	10	k	0.1W
3334	319802151030	10	k	0.1W
3335	319802154720	4.7	k	0.1W
3336	319801101030	10	k	0.17W
3337	319802151040	100	k	0.1W
3340	319801101020	1	k	0.17W
3341	319802151010	100	R	0.1W
3344	319801101010	100	R	0.17W
3352	319801101020	1	k	0.17W
3354	319802154730	47	k	0.1W
3357	319801104730	47	k	0.17W
3358	319801101020	1	k	0.17W
3363	319801103910	390	R	0.17W
3364	319801103330	33	k	0.17W
3365	319802151030	10	k	0.1W
3371	▲ 232220533228	2.2	R	NFR25
3372	319802152230	22	k	0.1W
3373	319802154710	470	R	0.1W
3374	319802152210	220	R	0.1W
3375	319802151030	10	k	0.1W
3376	319802154720	4.7	k	0.1W
3377	319801101080	1	R	0.17W
3378	319802154730	47	k	0.1W
3379	319802153920	3.9	k	0.1W
3380	319801102710	270	R	0.17W
3381	319801105620	5.6	k	0.17W
3382	319802151030	10	k	0.1W
3383	319801101030	10	k	0.17W
3385	319802152230	22	k	0.1W
3386	319801103330	33	k	0.17W
3387	319802158230	82	k	0.1W
3388	319802154720	4.7	k	0.1W
3390	319802154710	470	R	0.1W
3391	319802152250	2.2	M	0.1W
3392	319802151040	100	k	0.1W
3393	319802151040	100	k	0.1W
3394	319802154730	47	k	0.1W
3397	319802151010	100	R	0.1W
3398	319802154720	4.7	k	0.1W
3403	319802151010	100	R	0.1W
3404	319802152730	27	K	0.1W
3405	319802156820	6.8	k	0.1W
3406	319802190020	CHIP JUMPER		
3407	319802151010	100	R	0.1W
3409	319802152220	2.2	k	0.1W
3410	319802152220	2.2	k	0.1W
3413	319801101010	100	R	0.17W
3415	319802152220	2.2	k	0.1W
3416	319802155630	56	k	0.1W
3417	319801102220	2.2	k	0.17W
3419	319802152220	2.2	k	0.1W
3422	319802154730	47	k	0.1W
3423	319802154720	4.7	k	0.1W
3425	319802153330	33	k	0.1W
3426	▲ 232220533109	10	R	
3427	319802152210	220	R	0.1W
3428	319801101020	1	k	0.17W
3429	319802151030	10	k	0.1W
3430	319802151020	1	k	0.1W
3432	319801101030	10	k	0.17W
3433	319801104720	4.7	k	0.17W
3435	319802154720	4.7	k	0.1W
3436	319801101010	100	R	0.17W
3438	3[illegible]802154730	47	k	0.1W
3440	3[illegible]802151030	10	k	0.1W
3444	319801103310	330	R	0.17W
3446	319801101030	10	k	0.17W
3447	319801101010	100	R	0.17W
3449	319802151030	10	k	0.1W
3450	319802151030	10	k	0.1W
3451	319802151030	10	k	0.1W
3452	319802151020	1	k	0.1W
3454	319802158210	820	R	0.1W
3455	319802151030	10	k	0.1W
3457	319802154710	470	R	0.1W
3458	319802151020	1	k	0.1W
3459	319802154730	47	k	0.1W
3460	319802154720	4.7	k	0.1W
3461	319802158220	8.2	k	0.1W
3462	319802152230	22	k	0.1W
3463	319802152230	22	k	0.1W
3464	319802154730	47	k	0.1W
3465	319801101020	1	k	0.17W
3466	319801101040	100	k	0.17W
3467	319801102220	2.2	k	0.17W
3472	319802151230	12	k	0.1W
3473	319801101230	12	k	0.17W
3474	319802154720	4.7	k	0.1W
3475	319802154720	4.7	k	0.1W
3476	319802154730	47	k	0.1W
3477	319802154730	47	k	0.1W
3478	319802151030	10	k	0.1W
3479	319801102220	2.2	k	0.17W
3480	319801101020	1	k	0.17W
3483	319801101030	10	k	0.17W
3488	319802151020	1	k	0.1W
3490	319802152230	22	k	0.1W
3492	319801104730	47	k	0.17W
3493	319801104720	4.7	k	0.17W
3495	319801102220	2.2	k	0.17W
3496	319802152210	220	R	0.1W
3497	319802151030	10	k	0.1W
3498	319802151030	10	k	0.1W
3499	319802154720	4.7	k	0.1W
3503	319801102210	220	R	0.17W
3504	319802157590	75	R	0.1W
3505	319802157590	75	R	0.1W
3507	319802152210	220	R	0.1W
3509	319802152210	220	R	0.1W
3511	319802157590	75	R	0.1W
3513	319802152210	220	R	0.1W
3514	319802152210	220	R	0.1W

▲... Safety component, use only this type

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3515	319802152210	220	R	0.1W
3516	319802152210	220	R	0.1W
3518	319802157590	75	R	0.1W
3519	319801104720	4.7	k	0.17W
3520	319802151030	10	k	0.1W
3521	319802156820	6.8	k	0.1W
3522	319802155630	56	k	0.1W
3523	319801103910	390	R	0.17W
3524	319801108210	820	R	0.17W
3525	319801103330	33	k	0.17W
3528	319801101230	12	k	0.17W
3529	319801101010	100	R	0.17W
3533	319802152240	220	k	0.1W
3535	319802152240	220	k	0.1W
3536	319801102240	220	k	0.17W
3538	319802152220	2.2	k	0.1W
3543	319802151830	18	k	0.1W
3544	319802154720	4.7	k	0.1W
3545	319802152240	220	k	0.1W
3546	319802151830	18	k	0.1W
3547	319802154720	4.7	k	0.1W
3548	319802152240	220	k	0.1W
3549	319802152230	22	k	0.1W
3550	319802151040	100	k	0.1W
3551	319802153940	390	k	0.1W
3552	319802151040	100	k	0.1W
3553	319802153940	390	k	0.1W
3554	319802151040	100	k	0.1W
3555	319802151040	100	k	0.1W
3556	319802151510	150	R	0.1W
3557	319802151510	150	R	0.1W
3558	319802151010	100	R	0.1W
3559	319802151010	100	R	0.1W
3560	319802151010	100	R	0.1W
3561	319802151010	100	R	0.1W
3562	319801101510	150	R	0.17W
3601	319801104730	47	k	0.17W
3602	319802152250	2.2	M	0.1W
3603	319802158220	8.2	k	0.1W
3604	319801101010	100	R	0.17W
3606	319802151030	10	k	0.1W
3607	319802151230	12	k	0.1W
3608	319802151830	18	k	0.1W
3609	319802152230	22	k	0.1W
3610	319802153320	3.3	k	0.1W
3611	319801103390	33	R	0.17W
3612	319802156820	6.8	k	0.1W
3613	319802151530	15	k	0.1W
3614	319801104720	4.7	k	0.17W
3615	319802153910	390	R	0.1W
3616	319802156810	680	R	0.1W
3617	319802151030	10	k	0.1W
3618	319802154750	4.7	M	0.1W
3619	319802152240	220	k	0.1W
3620	319801102220	2.2	k	0.17W
3621	319802158220	8.2	k	0.1W
3622	319801102230	22	k	0.17W
3623	319802151230	12	k	0.1W
3624	319802154730	47	k	0.1W
3625	319802152220	2.2	k	0.1W
3626	212036890126	100	k	POT
3627	212010891729	390	k	0.1W
3628	319802154730	47	k	0.1W
3629	319802152220	2.2	k	0.1W
3630	319802156810	680	R	0.1W
3631	319801104790	47	R	0.17W
3632	319802151090	10	R	0.1W
3633	212010892664	1.5	R	
3641	319802151830	18	k	0.1W
3642	319801103310	330	R	0.17W
3643	319802153920	3.9	k	0.1W
3644	319802152240	220	k	0.1W
3645	319802153330	33	k	0.1W
3646	319802156830	68	k	0.1W
3647	319802151090	10	R	0.1W
3648	212010892664	1.5	R	
3651	319801101030	10	k	0.17W
3652	212010892633	39	k	1%
3653	319802151010	100	R	0.1W
3654	319801101010	100	R	0.17W
3655	319802156830	68	k	0.1W
3656	319802155620	5.6	k	0.1W
3657	319802156830	68	k	0.1W
3658	319802155620	5.6	k	0.1W
3659	319802151040	100	k	0.1W
3660	319802151040	100	k	0.1W
3663	319802154750	4.7	M	0.1W
3664	319801101020	1	k	0.17W
3700	319802154710	470	R	0.1W
3701	319802153930	39	k	0.1W
3702	319801101040	100	k	0.17W
3703	319802151830	18	k	0.1W
3704	319802153330	33	k	0.1W
3705	319801106810	680	R	0.17W
3706	319802153310	330	R	0.1W
3707	212036890124	22	k	POT
3708	319802151830	18	k	0.1W
3709	319802151540	150	k	0.1W
3710	319802152210	220	R	0.1W
3711	319802153320	3.3	k	0.1W
3712	319802151020	1	k	0.1W
3714	319802151010	100	R	0.1W
3715	319802153310	330	R	0.1W
3715	319802152710	270	R	0.1W
3716	319802153320	3.3	k	0.1W
3718	319802152220	2.2	k	0.1W
3719	319802156820	6.8	k	0.1W
3721	319802154720	4.7	k	0.1W
3722	319802151010	100	R	0.1W
3723	319802151010	100	R	0.1W
3724	319802152230	22	k	0.1W
3726	319802151020	1	k	0.1W
3727	319802155620	5.6	k	0.1W
3728	319802155620	5.6	k	0.1W
3729	319802155620	5.6	k	0.1W
3730	212036890126	100	k	POT
3731	319801104710	470	R	0.17W
3732	319802151010	100	R	0.1W
3733	319802152720	2.7	k	0.1W
3734	319802153310	330	R	0.1W
3762	319802155620	5.6	k	0.1W
3763	319802190020	CHIP JUMPER		
3764	319801104720	4.7	k	0.17W
3765	319801101010	100	R	0.17W
3768	319802155620	5.6	k	0.1W
3770	319802151020	1	k	0.1W
3771	212010891686	7.5	k	
3772	319802151020	1	k	0.1W
3773	319802151020	1	k	0.1W
3774	319802151020	1	k	0.1W
3775	319802152720	2.7	k	0.1W
3776	319802151010	100	R	0.1W
3777	319802151010	100	R	0.1W
3778	319802154710	470	R	0.1W
3779	319802154710	470	R	0.1W
3801	319802152720	2.7	k	0.1W
3802	319802152720	2.7	k	0.1W
3803	319802151040	100	k	0.1W
3804	319801101030	10	k	0.17W
3805	319801101040	100	k	0.17W
3806	319801104790	47	R	0.17W
3807	319801101040	100	k	0.17W
3808	319801102720	2.7	k	0.17W
3809	319802151520	1.5	k	0.1W
3810	319802151820	1.8	k	0.1W
3811	319801101040	100	k	0.17W
3812	319801108220	8.2	k	0.17W
3813	319801102230	22	k	0.17W
3815	319802153310	330	R	0.1W
3817	212036890121	2.2	k	trim.
3818	319801108210	820	R	0.17W
3819	319802151830	18	k	0.1W
3820	319802151830	18	k	0.1W
3821	319801102230	22	k	0.17W
3822	319802152230	22	k	0.1W
3823	319802154740	470	k	0.1W
3830	319802154720	4.7	k	0.1W
3831	319802151040	100	k	0.1W
3832	319802152230	22	k	0.1W
3833	319802151530	15	k	0.1W
3834	319802154720	4.7	k	0.1W
3835	319802154720	4.7	k	0.1W

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3836	319802154720	4.7	k	0.1W
3837	319802152220	2.2	k	0.1W
3838	319802152220	2.2	k	0.1W
3839	319802151060	10	M	
3840	319802151060	10	M	
3841	319802153330	33	k	0.1W
3842	319802153330	33	k	0.1W
3843	319802153330	33	k	0.1W
3844	319802153330	33	k	0.1W
3845	319802153330	33	k	0.1W
3846	319802153330	33	k	0.1W
3851	319802156830	68	k	0.1W
3852	319802153320	3.3	k	0.1W
3853	319802153320	3.3	k	0.1W
3856	212010891725	270	k	0.1W
3857	319801101010	100	R	0.17W
3867	319802151010	100	R	0.1W
3868	319802152220	2.2	k	0.1W
3870	319802158210	820	R	0.1W
3871	319802154730	47	k	0.1W
3872	319802154730	47	k	0.1W
3873	319802154730	47	k	0.1W
3876	319802151030	10	k	0.1W
3880	319801101080	1	R	0.17W
3881	319802158210	820	R	0.1W
3882	319801108210	820	R	0.17W

RESISTORS

4100	319802190020	CHIP JUMPER
4101	319802190020	CHIP JUMPER
4102	319802190020	CHIP JUMPER
4103	319802190020	CHIP JUMPER
4104	319802190020	CHIP JUMPER
4105	319802190020	CHIP JUMPER
4106	319802190020	CHIP JUMPER
4107	319802190020	CHIP JUMPER
4108	319802190020	CHIP JUMPER
4110	319802190020	CHIP JUMPER
4111	319802190020	CHIP JUMPER
4452	319802190020	CHIP JUMPER
4456	319802190020	CHIP JUMPER
4481	319802190020	CHIP JUMPER
4482	319802190020	CHIP JUMPER
4485	319802190020	CHIP JUMPER
4486	319802190020	CHIP JUMPER
4487	319802190020	CHIP JUMPER
4488	319802190020	CHIP JUMPER
4489	319802190020	CHIP JUMPER
4490	319802190020	CHIP JUMPER
4491	319802190020	CHIP JUMPER
4492	319802190020	CHIP JUMPER
4493	319802190020	CHIP JUMPER
4494	319802190020	CHIP JUMPER
4496	319802190020	CHIP JUMPER
4498	319802190020	CHIP JUMPER
4499	319802190020	CHIP JUMPER
4502	319802190020	CHIP JUMPER
4503	319802190020	CHIP JUMPER
4651	319802190020	CHIP JUMPER
4652	319802190020	CHIP JUMPER
4701	319802190020	CHIP JUMPER
4704	319802190020	CHIP JUMPER
4705	319802190020	CHIP JUMPER
4706	319802190020	CHIP JUMPER
4711	319802190020	CHIP JUMPER
4712	319802190020	CHIP JUMPER
4713	319802190020	CHIP JUMPER
4722	319802190020	CHIP JUMPER
4724	319802190020	CHIP JUMPER
4759	319802190020	CHIP JUMPER
4761	319802190020	CHIP JUMPER
4762	319802190020	CHIP JUMPER
4763	319802190020	CHIP JUMPER
4764	319802190020	CHIP JUMPER
4765	319802190020	CHIP JUMPER
4852	319802190020	CHIP JUMPER
4911	319802190020	CHIP JUMPER
4912	319802190020	CHIP JUMPER
4914	319802190020	CHIP JUMPER
4916	319802190020	CHIP JUMPER

COILS

5001	319801821090	10 µH
5002	242253594339	150 µH
5004	242253594335	56 µH
5005	242253594334	47 µH
5006	242253594327	15 µH
5008	242253594325	10 µH
5009	242253594338	100 µH
5010	242253594323	6.8 µH 5%
5071	242253594692	6.8 µH 5%
5072	242253597877	10 µH
5073	242253594335	56 µH
5074	242253594329	22 µH
5075	242253594699	27 µH 5%
5076	319801890090	COIL
5100	242253594272	22 µH 5%
5101	242253597333	100 µH 10%
5322	242253597333	100 µH 10%
5323	242253597342	22 µH 10%
5453	242253594325	10 µH
5454	242253595097	BOB 2,4MU FBA04HA900BB TY
5455	242254941993	IND FXD100MHZ600R BLM21KB
5456	242254941993	IND FXD100MHZ600R BLM21KB
5457	242254941993	IND FXD100MHZ600R BLM21KB
5471	242253594118	INDFXD SPT0203A0U33 PM10A
5501	242253594323	6.8 µH 5%
5601	242253596863	10 µH 5%
5602	310313824910	COIL ASSY
5603	242254941993	IND FXD100MHZ600R BLM21KB
5641	310313824910	COIL ASSY
5701	242253594327	15 µH
5702	242254941645	IND VAR 0,256UH +6-10%
5703	242254941993	IND FXD100MHZ600R BLM21KB
5704	242254941645	IND VAR 0,256UH +6-10%
5706	242253594323	6.8 µH 5%
5708	242253594325	10 µH
5760	319801821090	10 µH
5761	319801821010	COIL
5762	319801821090	10 µH
5803	242254941993	IND FXD100MHZ600R BLM21KB
5804	242254941993	IND FXD100MHZ600R BLM21KB
5805	242254941993	IND FXD100MHZ600R BLM21KB
5806	242254941993	IND FXD100MHZ600R BLM21KB
5807	242254941993	IND FXD100MHZ600R BLM21KB
5853	242253594325	10 µH
5854	242253594327	15 µH
5856	242253594323	6.8 µH 5%
5871	242253594325	10 µH
5872	242254941993	IND FXD100MHZ600R BLM21KB

DIODES

6401	933624760133	BAT85
6460	310313887290	OPTO ASSY TCZT8299-PAER
6503	932203796673	MTZJ6.8C
6507	932203216673	MTZJ12C
6601	933712670673	BZX55-B7V5 A
6702	934025520115	BA792
6761	319801010010	1N4148

TRANSISTORS & IC's

7001	319801042030	BC847B
7002	319801042030	BC847B
7003	932210079685	LC89980M
7004	319801042150	BC857B
7005	932211964671	LA71527M (TSAJ) Y
7006	319801042030	BC847B
7007	319801044020	PDTA124ET
7008	319801042030	BC847B
7009	319801042030	BC847B
7010	933092111215	BFS20
7011	933092111215	BFS20
7014	319801042030	BC847B
7015	319801042150	BC857B
7016	319801042030	BC847B
7071	319801042150	BC857B

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7072	932214759682	LA7339A
7073	319801042030	BC847B
7074	319801042030	BC847B
7075	319801042030	BC847B
7091	933406660653	HEF4094BT
7092	319801044120	PDTC124ET
7101	319801042030	BC847B
7102	319801042030	BC847B
7103	932211188668	STV5744ADT
7104	932203746668	STV5712TR
7105	319801044020	PDTA124ET
7106	319801044020	PDTA124ET
7107	319801044120	PDTC124ET
7321	932214226687	FET POW STD16NE06-1 L
7322	933946350215	FET SIG BSS138
7323	932214226687	FET POW STD16NE06-1 L
7324	319801042030	BC847B
7325	319802043530	BC337-25
7326	319802043430	BC327-25
7327	319801042150	BC857B
7328	319801042030	BC847B
7329	319801042030	BC847B
7401	932211746668	M24128-MN6 (ST00) R
7404	319801042030	BC847B
7406	310316530010	TMP93C071F 120PIN
7407	319802043530	BC337-25
7408	319801042150	BC857B
7412	319801044020	PDTA124ET
7413	319801042030	BC847B
7414	319801042030	BC847B
7415	319801042030	BC847B
7440	933979290682	L2722
7441	319801044020	PDTA124ET
7442	319801042030	BC847B
7443	935034880112	SAA1310/N2
7446	935211440112	TDA5241
7451	310317855360	EPROM ASSY ACOP8-Ux
7452	932212786682	CY62256LL-70PC(CYPR) L
7461	310313887290	OPTO ASSY TCZT8299-PAER
7462	310313887290	OPTO ASSY TCZT8299-PAER
7464	932209789682	OPT CP TCRT5000L
7465	932209789682	OPT CP TCRT5000L
7466	932209791682	OPT CP TCST1030L
7502	933628640215	CHIP BC817/40
7504	319801042030	BC847B
7505	319801044120	PDTC124ET
7506	932212428682	STV6401
7508	319801044120	PDTC124ET
7510	319801044120	PDTC124ET
7511	933372950653	HEF4052BT
7512	932209259668	TL072 (ST00) R
7603	933589730215	BC856B
7604	319802043430	BC327-25
7605	933589560215	BC846B
7606	933589560215	BC846B
7607	319801042030	BC847B
7608	933628640215	CHIP BC817/40
7641	319801042150	BC857B
7642	319801042030	BC847B
7643	933628640215	CHIP BC817/40
7651	935262251557	TDA9616H/N2 Y
7701	933372960653	HEF4053BT
7702	319801044120	PDTC124ET
7703	319801042030	BC847B
7704	319801042150	BC857B
7705	935260611118	TDA9818T/V1 R
7705	935262113118	TDA9817T/V1 R
7706	319801042030	BC847B
7707	319801042030	BC847B
7760	935264081557	TDA9873HZ for German Stereo
7761	932214797668	MSP3415D-QG-B3
7761	932215069671	MSP3451G-QG-A1(MIAS) for Smart Sound only
7762	319801042030	BC847B
7801	933092111215	BFS20
7802	319801042150	BC857B
7803	932214339668	TS339CD (ST00)R
7804	933092111215	BFS20
7805	319801044020	PDTA124ET
7807	932211821682	TA1225N (TOSJ) L
7830	933984900682	LM339N ST
7831	319801042030	BC847B
7832	319801042030	BC847B
7851	932213621668	SDA5652-2X
7854	319801042150	BC857B
7855	319801042030	BC847B
7856	319801042150	BC857B
7871	932213702668	STV5348D SO28

RESISTORS

9051	319802190020	CHIP JUMPER
9512	319802190020	CHIP JUMPER
9525	319802190020	CHIP JUMPER
9701	319802190020	CHIP JUMPER

▲... Safety component, use only this type

Display Control ADCP18

MISCELLANEOUS

1234	242212915676	SWI JOG-SHUT EVQWM7-001
1261	242254098328	CER RES 8MHZ EFOEC8004T4A
1262	242254300056	CRYSTAL 32.768kHz
1281	242212802921	SWITACT 1P 50MA 12V EVQPV
1282	242212802921	SWITACT 1P 50MA 12V EVQPV
1295	242212802921	SWITACT 1P 50MA 12V EVQPV
1920	242202514524	CONNECTOR 14P F1.25 FFC 0.3
1922	242202514515	CONNECTOR 6 PIN
1923	242202514535	CONNECTOR 6P F 1.25 FFC 0.3

CAPACITORS

2200	202002590011	SUPCAP SD 5V5 220M P80M20
2201	202001293647	ELCAP MS7 6V3 S 220U PM20
2202	319802321040	100 nF 25V
2203	319801701030	10 nF 50V
2221	319801701020	1 nF 50V
2225	319802922290	22 µF 16V
2230	319801701030	10 nF 50V
2231	319801724730	47 nF 50V
2250	202055295499	100 nF 50V
2262	319801601590	15 pF 50V
2263	319801601590	15 pF 50V

RESISTORS

3210	319801101010	100 R 0.17W
3211	319801101010	100 R 0.17W
3212	319802154720	4.7 k 0.1W
3213	319802152730	27 K 0.1W
3214	319802152730	27 K 0.1W
3215	319802154710	470 R 0.1W
3216	319802152730	27 K 0.1W
3217	319802152730	27 K 0.1W
3218	319802152730	27 K 0.1W
3219	319802152730	27 K 0.1W
3220	319801102210	220 R 0.17W
3221	319801101030	10 k 0.17W
3222	319802151020	1 k 0.1W
3223	319802151530	15 k 0.1W
3224	319802152220	2.2 k 0.1W
3226	319802152210	220 R 0.1W
3227	319802151030	10 k 0.1W
3228	319802151030	10 k 0.1W
3230	319802152220	2.2 k 0.1W
3231	319802152210	220 R 0.1W
3232	319802152210	220 R 0.1W
3233	319802152210	220 R 0.1W
3234	319802152210	220 R 0.1W
3235	319802151030	10 k 0.1W
3236	319802152210	220 R 0.1W
3237	319802154720	4.7 k 0.1W
3238	319802152710	270 R 0.1W
3240	319802151030	10 k 0.1W
3241	319802151030	10 k 0.1W
3246	319802151040	100 k 0.1W
3247	319802151040	100 k 0.1W
3250	319802151830	18 k 0.1W
3251	319801101010	100 R 0.17W
3252	319801101010	100 R 0.17W
3257	319801104780	4.7 R 0.17W
3258	319801104780	4.7 R 0.17W
3259	319801104780	4.7 R 0.17W
3269	319802151030	10 k 0.1W
3279	319802151030	10 k 0.1W
3280	319802151030	10 k 0.1W
3281	319802151820	1.8 k 0.1W
3282	319802154720	4.7 k 0.1W
3289	319802151030	10 k 0.1W
3295	319802153930	39 k 0.1W
3299	319802151030	10 k 0.1W
3900	319802190020	CHIP JUMPER
3901	319802190020	CHIP JUMPER
3902	319802190020	CHIP JUMPER
3906	319802190020	CHIP JUMPER
3907	319802190020	CHIP JUMPER
3908	319802190020	CHIP JUMPER
3909	319802190020	CHIP JUMPER
3910	319802190020	CHIP JUMPER
3911	319802190020	CHIP JUMPER
3912	319802190020	CHIP JUMPER
3921	319802190020	CHIP JUMPER
3925	319802190020	CHIP JUMPER
3927	319802190020	CHIP JUMPER
3931	319802190020	CHIP JUMPER

COILS

5200	242253597333	100 µH 10%
5201	242253594323	6.8 µH 5%

DIODES

6200	933624760133	BAT85
6250	319801021090	BZX79-C10

TRANSISTORS & IC's

7200	310316513100	TMP87CH70F AD0P1-1U
7202	310316500250	VACUUM FLUORESC. DISPLAY
7220	932211213687	IR REC TSOP1736(TEGO) L
7231	319801044120	PDTC124ET
7232	319801044120	PDTC124ET
7234	319801042150	BC857B
7235	319801042150	BC857B
7236	319801044020	PDTA124ET
7240	319801042150	BC857B
7241	319801042150	BC857B

Connector PCB ACP18, CABLES

MISCELLANEOUS

0010	310310416590	LED-SOCKET
1551	242212802921	SWITACT 1P 50MA 12V EVQPV
1929	242202514515	CONNECTOR 6 PIN
1980	242202514532	CONNECTOR 3 PIN
1981	310314027000	CABLTREE A 1POL BUPI-1957
1982	242202514536	CONNECTOR 7P F 1.25 FFC 0.3
1985	310310024260	CINCH SOCKET 3 FOLD
1989	242202604436	CON HSJ1452

CAPACITORS

2551	319801604710	470	pF	50V
2552	319801721050	1	µF	16V
2553	319801701040	100	nF	16V
2554	319801604710	470	pF	50V
2555	319801721050	1	µF	16V
2556	319801701040	100	nF	16V

RESISTORS

3551	212255100008	**VDR**		**MAX 21V**
3552	319802151050	1	M	0.1W
3553	319802156840	680	k	0.1W
3554	319802154740	470	k	0.1W
3555	319802154720	4.7	k	0.1W
3556	212255100008	VDR		MAX 21V
3557	319802151050	1	M	0.1W
3558	319802156840	680	k	0.1W
3559	319802154740	470	k	0.1W
3560	319802154720	4.7	k	0.1W
3561	319802157590	75	R	0.1W
3562	319801101510	150	R	0.17W
3564	319802151030	10	k	0.1W
3900	319802190020	CHIP JUMPER		
4507	319802190020	CHIP JUMPER		

COILS

5551	242253594339	150 µH
5552	319801811010	100 µH
5553	242253594339	150 µH

DIODES

6551	319801021290	BZX79-C12
6552	319801021290	BZX79-C12
6553	319801026880	BZX79-C6V8
6554	319801026880	BZX79-C6V8
6555	934025530115	BAS216
6556	934025530115	BAS216
6557	319801026880	BZX79-C6V8
6558	319801026880	BZX79-C6V8
6570	933845770682	LED RED TLHR4205

TRANSISTORS

7551	319801042040	BC847C
7552	319801042040	BC847C

CABLES

	4822 320 50377	ANTENNA cable
	4822 321 63002	SCART cable
▲	4822 321 10249	SBC1201 MAINS CABLE
▲	4822 321 10886	MAINS CABLE UK
	4822 320 50377	CONNECT. CABLE PAL
	4822 321 63002	SCART CABLE(PROJ.50)
	4822 321 62401	AUDIO-CABLE
8001	4822 320 11889	FFC TD1-1961
8003	4822 320 12453	FFC 3POL TD3-1947
8004	4822 320 12454	FFC 6POL TD4-1948
8011	4822 320 12455	FFC 7POL 1982-1956
8012	4822 320 12453	FFC 3POL TD3-1947
8013	4822 320 12461	FFC 1961-1102
8014	4822 320 12456	FFC 3POL 1929-1922
8018	4822 320 12458	FFC 17POL 1915-1942
8020	4822 320 12459	FFC 14POL 1944-1920
8024	3103 140 27540	FFC 6POL 1923-keyPCB

REPAIR KITS

4822 310 11237	POWER SUPPLY REPAIR KIT

▲... Safety component, use only this type